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Mathematics of Tooth Decay

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THE fluoridation of public water supplies for the reduction of dental caries has recently become of much interest to cities throughout North Dakota. Within the past several months the State Department of Health has received inquiries from seven cities regarding approval of the process and requesting additional information.

In an effort to provide as much information as possible and to answer some of the questions regarding minimum D.M.F. rates, optimum dosages, maximum protection, etc., a review of existing literature was made.

In an article by John W. Knutson [1] one statement was encountered which was questioned on a purely theoretical basis: "It has been demonstrated that, in general, the D.M.F. rates in the permanent teeth of school children increase with age in a straight-line fashion during the age span 6 to 18 years." Since tooth decay is basically the result of bacterial action, a straight-line function is hardly indicated; rather some type of curve similar to that of the decomposition of sewage would be expected, essentially one indicating a unimolecular reaction.

The present research was started in an attempt to prove or disprove this theory. The original hypothesis was that for any given fluorine concentration, the D.M.F. rate would vary with age, not in a straight-line function but in a curve similar to a unimolecular reaction. Also, if this were true, a rate of reaction constant, which would indicate rate of decomposition or protection, could be determined for each fluoride concentration. In addition, there should be a mathematical equation showing the relationship of fluoride concentration to the rate of decomposition or protection of the teeth.

It was felt that relative rate constants would be of much more value in defining the conditions of the teeth in a given group than the usual method of using D.M.F. per child. A mathematical equation between rates of decomposition and fluoride concentrations should answer some of the questions regarding optimum dosages and possibly would give some indication of the way in which fluorine protects teeth.

With these thoughts in mind, the data from dental surveys conducted by the Division of Oral Hygiene were compiled for analysis. There were available

FIGURE 1—Age vs. D.M.F.—Showing Effect of Fluorides

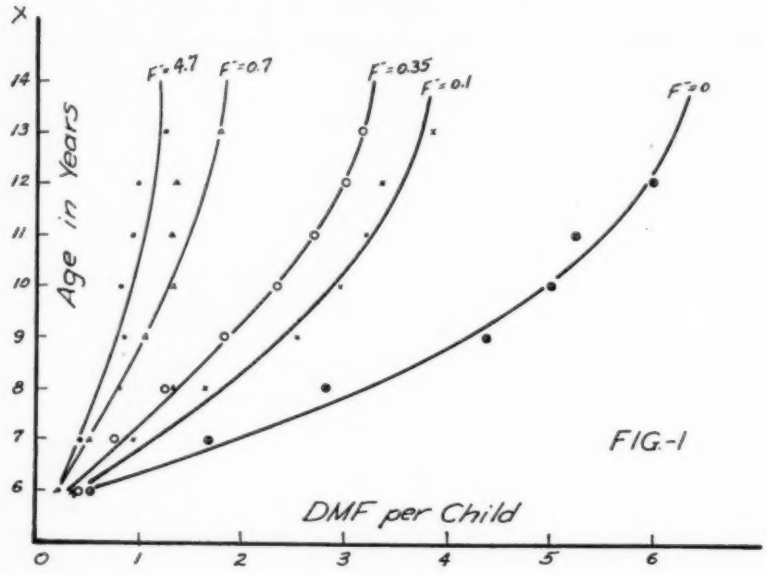
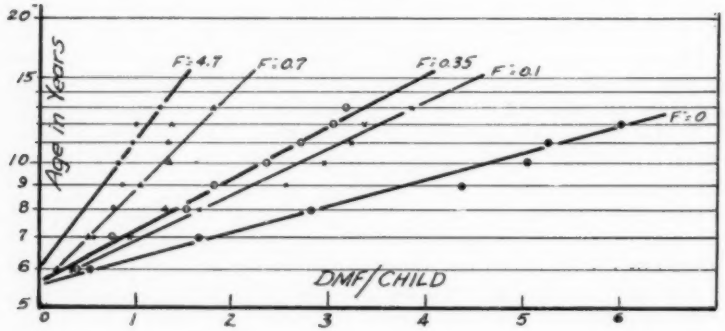


FIGURE 2



24 dental surveys of school children in various communities. Of these, 15 were communities served by public water supplies of which there was a record of the natural fluoride concentrations. These communities were first grouped according to the amount of fluoride present in the water supply, as follows: absent; trace to 0.12 p.p.m.; 0.3 to 0.4 p.p.m.; 0.6 to 0.8 p.p.m.; and 4.7 p.p.m. Since Knutson's [1] method was used in the dental surveys, a new caries rate was calculated for each fluoride group, using the totals of all the communities in the group. By doing this, the errors due to a small number of children in any group and due to high percentages showing at least one D.M.F. were re-

duced to a minimum. Knutson's method for determining an index of the prevalence of dental caries in school children lessens the work for the survey team; however, the limitations of the system must be realized, particularly the possible error due to a small sample group or to a high percentage of children with at least one D.M.F.

The data for each fluoride group was plotted on arithmetic scales with age in years versus D.M.F. per child. This produced the family of curves shown in Figure 1. The results confirm the original assumption that the relationship to age is not a straight-line function but a unimolecular type of curve. In a unimolecular reaction only one substance reacts, and its rate of decomposition is directly proportional to its concentration. The rate at which the reaction progresses is a constant, but the end product progressively decreases, as it is dependent upon the unreacted concentration remaining at that particular time.

For further study of this matter, the data were plotted on semilogarithmic scales, as shown in Figure 2. Using semilog scales, the curves fit a straight line within the expected accuracy of the data. The general equation of these straight lines can be expressed as:

$$\log y = kx + \log b$$

where

y = age in years
x = D.M.F. per child
b = a constant (y value at intercept of curve and y axis)
k = slope of curve = rate of protection

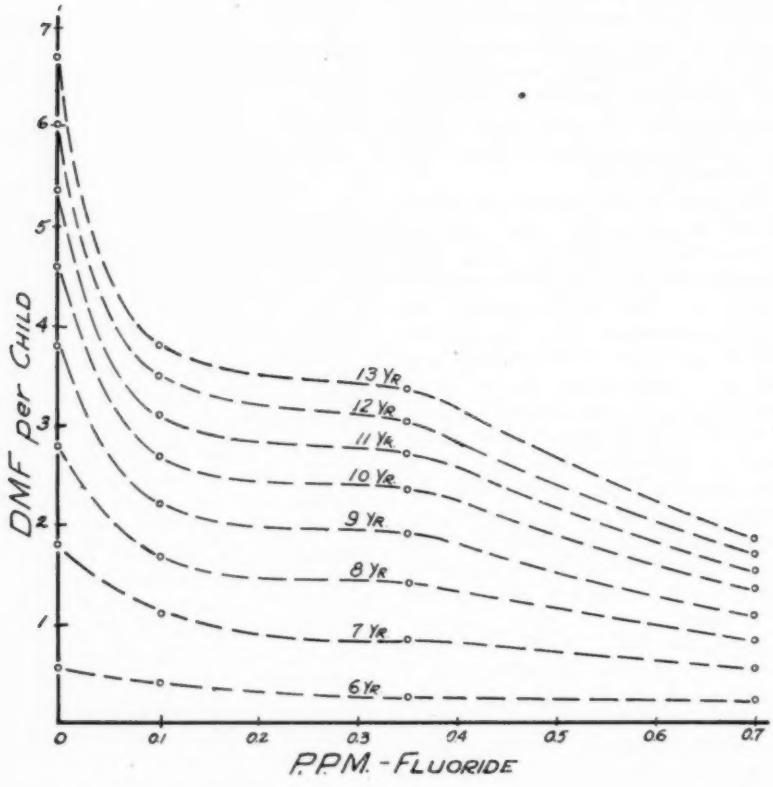
For future discussion it is felt that k should be defined as a rate of protection, as it is an index of the relative time per D.M.F. Likewise, 1/k would be the rate of decomposition of the teeth, as it indicates the relative D.M.F. per year. With these basic definitions, the larger the value of k the better the teeth. The calculated values of k and 1/k for the various curves are shown in the following tabulation:

k (Rate of Protection)	*1/k (Rate of Decomposition)*	*p.p.m. Fluoride*
0.0563	17.8	0.0
0.0965	10.35	0.1
0.1003	10.00	0.35
0.203	4.93	0.7
0.265	3.77	4.7

A study of the curves in Figure 2 and of the k values in the foregoing tabulation brings out several points of interest. It will be noted that the rate of protection provided by a fluoride concentration of 0.35 p.p.m. is approximately twice the natural rate of protection when fluorides are absent in the water supply. Also, a fluoride concentration of approximately 0.7 p.p.m. will provide twice the rate of protection given by 0.35 p.p.m. fluorides and four times the natural rate of protection when fluorides are absent. In the range of 0.0 to 0.35 p.p.m. fluorides, the data show that the first trace (approximately 0.1 p.p.m.) is the important portion, as it will provide a rate of protection nearly equal to that provided by 0.35 p.p.m. Likewise, the data indicate that above a fluoride concentration of 0.7 p.p.m., the rate of protection does not show a uniform increase but will approach a value of approximately 0.25 for 1.0 p.p.m. fluorides. This indicates that the value of k in relation to fluoride will vary between 0.056 and 0.25, not in a straight-line function but as a curvilinear equation. More intermediate points must be provided before this relationship can be determined.

An additional point of interest, or a question for further investigation, would be the k value, or natural rate of protection, where no fluorides are present. In the case of North Dakota this value has been found to be 0.0563. Will this value be the same for other sections of the country, or is it influenced by other outside factors? The data explained by Figure 3 would indicate that consider-

FIGURE 3—D.M.F. per Child vs. Fluoride—Showing Effect of Age



able variation in this natural rate can be expected.

In Figure 2 the curve for F = 4.7, and its corresponding k value cannot be given too much weight, as the total number of children in the sample was too small to give accurate results. This curve was drawn in where it was indicated, and approximately 50 per cent of the data fall along this line.

To compare the results of our dental surveys with data compiled by Dean,[2] the curves in Figure 3 were developed. In this case, age of the children was made the constant, and D.M.F. per child was plotted against fluoride content. The values used for plotting these curves are the theoretical ones obtained directly from the curves in Figure 2. The original data could have been used, and follow the curves shown. The theoretical values represent average figures and prevent the overlapping of data that would be encountered if original data were used.

The curve developed by Dean[2] for the age group 12–14 is very similar in shape to the curve for the 13-year-olds in Figure 3. The outstanding difference is that Dean's curve approaches a minimum of 3 D.M.F. per child for a fluoride content of 1 p.p.m. or greater, while the curve for the 13-year-olds in Figure 3 indicates a minimum of approximately

1.5 D.M.F. per child for fluoride concentrations of 1 p.p.m. or greater. This can mean only that the teeth of the North Dakota children are better than those of the group that Dean studied. If this is so, the difference must be due to a higher natural k value for the North Dakota children. This would indicate that other factors are influencing the natural rate of protection, since fluorides are absent.

The curves in Figure 3 also bring out more clearly the importance of having at least 0.1 p.p.m. of fluoride in the water as well as the value of having over 0.35 p.p.m. fluoride. The general shape of the curves shows that the first 0.1 p.p.m. of fluoride is very effective in reducing the D.M.F. rate, and that the next 0.25 p.p.m. (up to 0.35) is of very little value in further reducing the D.M.F. rate. However, above 0.35 p.p.m. up to approximately 1.0 p.p.m. the fluoride is very effective in reducing the D.M.F. rate.

This variation in the effectiveness of fluoride concentrations might be explained on a nutritional and direct chemical reaction basis. Perhaps the 0.1 p.p.m. fluoride is sufficient to fulfill the nutritional requirements for the formation of sound teeth and additional benefits are not obtained until the fluoride concentration exceeds 0.35 p.p.m. Above this point, apparently, direct chemical reaction between the tooth enamel and the fluoride takes place, giving additional protection. This chemical reaction assumption is further supported by the fact that the protection afforded increases with age, indicating a reaction over a longer period of time.

CONCLUSIONS

1. For any community school group having a common water supply with a fixed fluoride content, the relationship between age and D.M.F. per child is a curvilinear function typical of a unimolecular reaction.

2. The k value or rate of protection for any group using a common water supply can be determined, and the k value will increase, within limits, according to the fluoride content of the water.

3. In the absence of fluorides in the drinking water, there exists a natural rate of protection, k, which will probably vary in different sections of the country.

4. A comparison of k values should be a much better method of determining the feasibility of fluoridation than comparing D.M.F. per child to some fixed standard.

5. There should be a mathematical relationship between the k values and fluoride concentrations. More data are necessary to determine this relationship.

6. The teeth of the 12- and 13-year-olds in North Dakota have a lower D.M.F. rate at optimum fluoride concentrations than the same age group for other parts of the country shown in similar surveys.

7. The first 0.1 p.p.m. fluoride is very effective in reducing the D.M.F. rate and further reduction is not appreciable until above 0.35 p.p.m. Apparently, nutritional requirements and direct chemical reaction are involved in this phenomenon.

REFERENCES

1. Knutson, John W. An Index of the Prevalence of Dental Caries in School Children. *Pub. Health Rep.* 59, 8:253–263, 1944.
2. Dean, H. T. Domestic Water and Dental Caries. *J.A.W.W.A.* 35, 9:1161–1183, 1943.

American Board of Nutrition

Due to the congestion of applications, the American Board of Nutrition has announced an extension of time from July 1, 1951, to February 29, 1952, during which period candidates may be certified without examination on the basis of their training and experience. After that date, all applicants will be required to submit to examination for accreditation.

Geographic Variations of Dental Caries in Oregon: V. Dental Caries Among School Children in the Willamette Valley Region*†

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IT is recognized today that the solution of problems arising from the high prevalence of dental caries rests mainly on preventive measures which can result only from extensive research. One of the tools best suited for the study of factors associated with caries attack and resistance is the epidemiological method.

During the last few years, we have conducted a number of studies on dental caries among selected population groups in the State of Oregon, utilizing the epidemiological method of approach.[1-8] These studies are of particular interest because they are the first to have been conducted in the Pacific Northwest section of the United States. Oregon offers a unique opportunity for such studies because of its extreme diversity in climatology, topography, and agriculture. For these reasons, the state was divided into six geographic regions for detailed study. The present paper deals with the prevalence of caries, and some of the environmental factors which may have an influence on it, among school children of the Willamette Valley region of Oregon.

MATERIAL AND PROCEDURE

As was the case in our previous regional studies, dental examinations were conducted among school children of two counties, Marion and Benton, of the Willamette Valley region.

Dental examinations were given only to native born and reared white school children 14, 15, and 16 years of age. The classification of children as native born and reared followed the same rigid standards as those of our previous studies.[2]

Children meeting the requirements for eligibility for the examination were drawn from all the schools of both counties. In Marion County, the examination of children took place in a few school buildings strategically located throughout the county, whereas in Benton County the children were transported to the campus of Oregon State College for the examination. Facilities for the examinations were excellent in both counties.

The examinations were performed by means of mouth mirror and explorers. The number of children examined in one day, the time devoted to each dental examination, and the criteria of what was considered a carious lesion have been described in a previous publication.[2] The past and present caries experience of the subjects was expressed in terms of D.M.F. (Decayed, Missing, Filled) teeth.

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† This paper is one of a series made possible through special appropriations by the Oregon State Legislature to the Department of Foods and Nutrition, Oregon State College. The Extension Women's Council of the State of Oregon was instrumental in obtaining the fund.

All dental examinations in the present investigation, as well as in our previous studies, were made by the senior author. This fact adds uniformity to the collected material since variations in diagnosis were thus minimized.

The environmental factors considered for investigation in this study included again the following four items: (1) fluoride content of the public water supplies of both counties, (2) ratio of dentists to population, (3) quantity of candy bars and carbonated beverages consumed by the children, and (4) climatological data and altitude.

The coöperation of the school authorities in our study was excellent. For this reason, we were able to examine in both counties practically all the children found to be eligible for the examination. Of the total number of subjects who were eligible to be given the dental examination (native born and reared), the percentages examined in Marion and Benton counties were 93 and 94, respectively.

FINDINGS

The total number of children examined in both counties of the Willamette Valley region was 593. Altogether, in Marion County dental examinations were given to 474 children and in Benton County to 119 children. Their distribution by sex and age groups was almost equally divided in each county. Since the total population of Marion County is more than three times that of Benton, the number of children found to be eligible for the examination in Marion County was proportionately higher.

The past and present caries experience, in terms of D.M.F. teeth, of the subjects examined in the counties of Marion and Benton is shown in Table 1. The same table also presents a comparison of the caries experience of the Willamette Valley children with that which was observed among the subject populations examined previously in the other two geographic regions of Oregon—Central Oregon and Coast. It is apparent from the data presented in this table that substantial variations exist in the caries experience rates of children examined in the three geographic regions of the state.

TABLE 1

Number of D.M.F. Teeth of Native Born and Reared School Children in Three Geographic Regions of Oregon. Rates are Expressed per Child by Specified Age Groups.

Region	County	Age in Years (Last Birthday) 14	15	16	All Ages
Willamette Valley	Marion	10.5	12.3	13.2	11.8
	Benton	11.1	13.9	14.6	13.1
Central Oregon	Klamath	7.5	9.6	10.0	9.0
	Deschutes	9.6	12.0	12.3	11.3
Coast	Clatsop	13.3	15.1	15.3	14.4
	Coos	11.1	13.6	13.9	12.7

The differences in caries attack rates observed between the children of the Willamette Valley region and the subject populations in the other two regions of Oregon were tested for significance by the analysis of variance.* The results of the statistical analysis are presented in Tables 2 and 3. In general,

TABLE 2

Analysis of Variance—Marion Versus Other Counties

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Marion vs. Benton	149.8	1	149.8	5.37 *
Within counties	16,478.5	591	27.9	
Marion vs. Clatsop	862.0	1	862.0	30.14 †
Within counties	18,557.7	649	28.6	
Marion vs. Coos	119.9	1	119.9	4.41 *
Within counties	19,421.1	714	27.2	
Marion vs. Deschutes	26.7	1	26.7	0.93
Within counties	16,566.6	580	28.6	
Marion vs. Klamath	1,214.6	1	1,214.6	46.53 †
Within counties	17,909.3	686	26.1	

* Significant at 5 per cent level.
† Significant at 1 per cent level.

* The authors are indebted to Dr. J. C. R. Li, Department of Mathematics, Oregon State College, for his assistance in the analysis of variance.

TABLE 3

Analysis of Variance—Benton Versus Other Counties

Source of Variation	*Sum of Squares*	*Degrees of Freedom*	*Mean Square*	*F*
Benton vs. Clatsop	126.1	1	126.1	3.81
Within counties	9,727.2	294	33.1	
Benton vs. Coos	12.1	1	12.1	0.41
Within counties	10,590.6	359	29.5	
Benton vs. Deschutes	184.5	1	184.5	5.36 *
Within counties	7,736.1	225	34.4	
Benton vs. Klamath	1,301.4	1	1,301.4	47.50 †
Within counties	9,078.8	331	27.4	

* Significant at 5 per cent level.
† Significant at 1 per cent level.

they indicate that there is a similarity in the caries experience among the children of the Willamette Valley and Coast regions, whereas the school children of the Central Oregon region show the lowest caries prevalence rates.

The four components comprising the total caries experience of the children examined in the counties of Marion and Benton are shown in Table 4. These data reveal the magnitude of the dental caries problem, that is, the disparity between the dental needs of the subjects and the dental services received. As can be seen from this table, the average number, per child, of teeth which need to be filled, teeth indicated for extraction, and teeth extracted because of extensive caries is about equal to the number of filled teeth. In other words, almost half the dental needs of the subject population have not been met. Recently, Fulton [9] made some interesting observations on this subject, by comparing the dental status and dental needs of children in New Zealand with those in the United States.

TABLE 4

Components of Caries Experience of Native Born and Reared School Children in the Willamette Valley Region. Rates are Expressed per Child by Specified Age Groups.

County	*Permanent Teeth*	*Age in Years (Last Birthday) 14*	*15*	*16*	*All Ages*
Marion	Filled	5.7	7.3	8.4	6.9
	Filling indicated	5.1	5.0	4.9	5.0
	Missing	0.7	1.0	1.1	0.9
	Extraction indicated	0.2	0.4	0.2	0.3
Benton	Filled	5.7	7.6	9.5	7.5
	Filling indicated	5.5	7.0	5.4	6.0
	Missing	0.6	0.9	1.4	0.9
	Extraction indicated	0.3	0.3	0.2	0.3

In a recent publication [6] we have shown that among adolescents 17, 18, and 19 years of age the caries experience, expressed in terms of D.M.F. teeth, was bilaterally equal. In the present study this characteristic peculiar to caries attack has been tested again by limiting the observations to the condition of the teeth of one side of the mouth only (right upper and lower quadrants). The results of these measurements are presented in Table 5. A comparison of these data with those presented in Tables 1 and 4 clearly demonstrates that among

TABLE 5

*Dental Caries Experience in Terms of Half Mouth * of School Children in the Willamette Valley Region. Rates are Expressed per Child by Specified Age Groups.*

Permanent Teeth	*Marion County*				*Benton County*			
	Age in Years (Last Birthday)							
	14	*15*	*16*	*All Ages*	*14*	*15*	*16*	*All Ages*
Filled	2.9	3.6	4.2	3.5	2.8	3.8	4.8	3.7
Decayed (Filling indicated)	2.5	2.5	2.3	2.5	2.7	3.3	2.6	2.9
Mortality (Missing plus Extraction indicated)	0.4	0.7	0.7	0.6	0.4	0.6	0.8	0.6
D.M.F. teeth	5.3	6.1	6.5	5.9	5.5	7.0	7.5	6.6

* Right upper and lower quadrants.

children 14–16 years of age a sufficiently accurate determination of the condition of all the permanent teeth can be obtained from observations confined to the teeth on one side of the mouth only. This is done by doubling the value of each of the rates obtained by the simplified method. From the above observations it is evident that this simplified technique can be utilized profitably in the field of public health dentistry for measuring the dental status and the dental needs of large groups of school children. Thus, considerable saving in funds, time, and personnel is accomplished.

ENVIRONMENTAL FACTORS

In the present study, as in our previous ones, the following environmental factors were investigated for an explanation of the variability in caries experience observed among the children examined:

1. *Public Water Supplies*—A single water sample was collected from each of the public water supplies of both counties for the determination of the fluoride content. The samples in Marion County were collected by the County Sanitarian,* and those in Benton County by us. Altogether, 39 communal water supplies were in operation in both counties at the time of this investigation, and samples were collected and analyzed from all of them. All analyses were made by the senior author. The results of the analyses have shown that all the public water supplies of Benton County were fluoride-free, whereas in Marion County, supplies of a few small communities contained negligible amounts of fluoride (0.1–0.3 p.p.m.). In only one communal water supply serving a small number of families, the amount of fluoride was found to be 0.5 p.p.m.

Since fluoride determinations of the present water supplies may lead to erroneous conclusions, a retroactive investigation of the communal water supplies was undertaken. This was done in an effort to determine whether any changes in the source or physical setup of the water supplies had occurred within the lifetime (1934–1950) of the children examined. This retroactive investigation into the histories of the public water supplies revealed that, with the exception of a few small communities, no changes of such nature had occurred from the time the children were born up to the time of their examination.

2. *Ratio of Dentists to Population*—An attempt was made to determine whether the differences in caries experience could possibly be explained on the basis of accessibility to dental services. The ratio of dentists to population in both counties was computed for two widely separated years, 1942 and 1947, within the life period of the children examined. The results of these calculations revealed the following ratio for each county: Marion, 1:1,817 for 1942, and 1:1,168 for 1947; Benton, 1:2,203 for 1942, and 1:2,495 for 1947. These data show that in Marion County dental services were more readily available than in Benton County. This may be a partial explanation for the slightly lower caries attack rates observed in the children of Marion as compared with those of the subjects in Benton (Table 1). However, in our previous regional studies [4] we found that availability of dental services did not exert any influence on the caries experience of the school children.

3. *Candy Bars and Carbonated Beverages*—Since it is generally accepted today that the quantity of sugar consumed, whether natural or refined, affects the occurrence of caries, the intake of candy bars and carbonated beverages by the children was investigated. At the time of the dental examination the child was questioned by a

* Appreciation is expressed to Mr. I. G. Lermon, Sanitarian, Marion County Department of Health, for the collection of water samples and for information pertaining to the retroactive investigation of the public water supplies of Marion County.

specially trained person as to his weekly consumption of these two items.*

The results of this part of the investigation are presented in Table 6, and are compared with those obtained from our previous regional studies in Oregon.

TABLE 6

Average Weekly Consumption of Candy Bars and Carbonated Beverages

County	Candy Bars	Carbonated Beverages *
Marion	4.0	2.7
Benton	3.7	3.1
Clatsop	4.4	3.4
Coos	4.8	3.7
Deschutes	3.5	2.9
Klamath	4.2	2.7

* 6 oz. serving.

The data in this table indicate that there were no substantial variations in the weekly amounts of the candy bars and carbonated beverages consumed by the children in the three regions of the state. Therefore, this factor is not responsible for the wide differences in caries experience observed among the subject population. Although the present food intake does not necessarily indicate food habits of some years ago, the children of our study lived in typical American communities and it may be assumed that in the past their consumption of "sweets" was not markedly different.

4. *Climatological Data and Altitude* —The condition of the sky as well as the range of altitude of the two counties in the Willamette Valley region are presented in Table 7. These data show that the average number of clear days per year in both counties was almost the same, whereas the average number of cloudy days per year in Marion County was higher than that in Benton County. In general, however, the climatological data in the counties of the Willamette Valley are similar to those observed in the counties of the Coast region of the state.[4] Also, the range of altitude of the communities within Marion and Benton counties is as low as that reported for the counties of the Coast region,[4] with the exception that part of Marion County lies at somewhat higher elevations.

In contrast with the above findings in the Willamette Valley region, similar observations in the counties of the Central Oregon region, reported elsewhere,[4] have shown a much higher number of clear days per year and altitudes ranging from 2,870 to almost 5,000 feet above sea level.

COMMENTS AND CONCLUSIONS

The results obtained from our studies among native born and reared children living in various parts of Oregon begin

* This information was obtained by Mrs. Evelyn L. Warren, instructor in home economics, Oregon State College.

TABLE 7

*Summary of Climatological Data * (Period 1934–1950) and Range of Altitude of Two Counties in the Willamette Valley Region of Oregon*

Item Specified	Benton County	Marion 1 County
Average Number of clear days per year 2	123	106
Average Number of partly cloudy days per year 2	120	83
Average Number of cloudy days per year 2	122	176
Range of altitude 3	220'–310'	160'–1458'

* From U. S. Department of Commerce, Weather Bureau, Climatological Data, Oregon Section. Annual Reports, 1934–1950.

1 The climatological data for Marion County include the period 1934–1947. Since July, 1948, the Weather Bureau discontinued making observations on the conditions of the sky.

2 Number of observation stations: Benton 1; Marion 3.

3 Based on elevations of communities within each county.

to create a pattern revealing definite regional differences in caries prevalence rates, and also the possible influence of certain ecological factors on caries attack and resistance.

In general, we have observed high rates of caries attack among the children living in the regions west of the Cascade Range, that is, Coast and Willamette Valley. On the other hand, the children residing in the Central Oregon region, which is east of the mountains, have shown low caries attack rates. The Cascade Range, which extends north and south, divides the State of Oregon into the western and eastern parts, which are distinctively different in climatic conditions, agricultural production, and topography. The part west of the Cascade Range is characterized by low altitudes, high precipitation, and much cloudiness, whereas in the part of the state east of the Cascades, the opposite is true.

The investigation into various environmental factors for an explanation of the regional differences in caries experience observed among the children examined revealed that the fluoride content of the public water supplies, the availability of dental services, and the consumption of candy bars and carbonated beverages were not factors which could have been responsible. The only significant factor was the existence of an inverse relationship between the prevalence of caries on one hand and the amount of sunshine in combination with altitude on the other. The Coast and Willamette Valley regions, where we observed the high caries prevalence rates, were characterized by fewer hours of sunshine and by lower altitudes. In contrast, the Central Oregon region, where the caries prevalence rates were the lowest, was characterized by more hours of sunshine and by high altitudes.

Sunshine is believed to be of importance during the calcification period of the teeth because of the production of vitamin D through the action of the ultraviolet rays of the sun on the provitamin present under the surface of the skin. The explanation for this is that teeth which have been formed during vitamin D deficiency are believed to be more susceptible to caries attack.[10]

However, since the literature indicates that quantity as well as quality of the available sunshine is important,[11-13] a further study is being planned for a better understanding of the sunshine and dental caries relationship. In this study we aim to measure photoelectrically the biologically effective component of the ultraviolet radiation of the sun available in two regions of Oregon, one with low and the other with high caries prevalence rates. So far as we know, this is the first time that such a study has been undertaken, and it is believed that the results will be of interest.

From the foregoing presentation and discussion it is evident that the employment of the epidemiological method is applicable to the study of dental caries. It is our intention to employ this method of investigation in the remaining three geographic regions of Oregon, and thus to have a complete picture of the prevalence of caries in the entire state as well as a clarification of the environmental factors which may have an influence on it.

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Appreciation is also expressed to Dr. W. J. Stone, Marion County Health Officer, and to his staff for their kind assistance in carrying out our study in Marion County.

REFERENCES

1. Hadjimarkos, D. M., and Storvick, C. A. The Incidence of Dental Caries Among Freshman Students at Oregon State College. *J. Dent. Research* 27:299, 1948.

2. Hadjimarkos, D. M., and Storvick, C. A. Geographic Variations of Dental Caries in Oregon. I. *J. Dent. Research* 28:415, 1949.
3. Hadjimarkos, D. M., and Storvick, C. A. Geographic Variations of Dental Caries in Oregon. II. *J. Dent. Research* 28:594, 1949.
4. Hadjimarkos, D. M., Storvick, C. A., and Sullivan, J. H. Geographic Variations of Dental Caries in Oregon. III. *Oral Surg., Oral Med., Oral Path.* 3:481, 1950.
5. Hadjimarkos, D. M., and Storvick, C. A. Geographic Variations of Dental Caries in Oregon. IV. *A.J.P.H.* 40, 12:1552–1555, 1950.
6. Hadjimarkos, D. M., and Storvick, C. A. Bilateral Occurrence of Dental Caries. A Study in Oregon State College Freshman Students. *Oral Surg., Oral Med., Oral Path.* 3:1206, 1950.
7. Hadjimarkos, D. M., Storvick, C. A., and Sullivan, J. H. Dental Caries Experience Among Selected Population Groups in the State of Oregon. Agricultural Experiment Station, Oregon State College, *Tech. Bull.* No. 19 (May), 1950.
8. Hadjimarkos, D. M., and Storvick, C. A. Mortality and Morbidity of First Permanent Molars in Freshman College Students. *Oral Surg., Oral Med., Oral Path.* 3:250, 1950.
9. Fulton, J. T. Dental Caries in New Zealand and the United States. *A.J.P.H.* 41, 1:76–79, 1951.
10. The Michigan Workshop on the Evaluation of Dental Caries Control Technics. *J. Am. Dent. A.* 36:3, 1948.
11. Frawley, J. M. Ultraviolet Light in California Summer Sunshine. *Am. J. Dis. Child.* 41:751, 1931.
12. Frawley, J. M., and Brown, F. A. Ultraviolet Component of Central California Sunlight. *California & West. Med.* 40:358, 1934.
13. Moore, C. U., Broodie, J. L., Thornton, A. J., Lesem, A. M., and Cordua, O. B. Failure of Abundant Sunshine To Protect Against Rickets. *Am. J. Dis. Child.* 54:1227, 1937.

Peru's Revistade Salud Publica

The Peruvian Society of Public Health, Lima, is to be congratulated on the appearance early in 1951 of the first issue of its *Review of Public Health*, a 50 page journal containing an account of the formation of the Society, beginning in 1948, and of its early meetings under the presidency of Luis Ugarte, M.D., who is in charge of program in the Peru Ministry of Health and Welfare.

The original articles include one by Dr. Ugarte on the statistical classification of nursing records. There is a summary in English. The journal also includes a study of coöperation between public and private health agencies by Dr. Enrique Villalobos and Spanish translations of papers published in the United States.

The Society is an inclusive type for all persons professionally engaged in public health in Peru. Prominent in the leadership are outstanding physicians, some from medical research, engineers, and nurses, several of whom have received graduate training in North America.

The Public Health Veterinarian in National Defense*

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THE problems of veterinary public health first appeared during the early development of civilization, when man began to utilize animals for food, clothing, work, and pleasure. The resulting relationship between man and animals has transplanted man from the state in which nature originally placed him into one which exposes him to an ever-present source of diseases.

In the United States, several of the problems of animal infections or of disease producing agents which may be directly or indirectly transmitted to man through the medium of the animal or its products have been controlled or eliminated. With the knowledge and means available, members of the veterinary profession, in coöperation with the federal and state governments, have been able to reduce bovine tuberculosis from a high of 5 per cent in 1917 to 0.5 per cent in 1939. This disease has become relatively rare in the United States, this country probably having the lowest incidence of any country in the world, with a current reported incidence of 0.19 per cent. In much the same way, the problem of glanders of horses has become practically nonexistent in this country through the efforts of the veterinarian.

On the other hand, however, there are other diseases common to animals and man for which the cause and the methods of transmission are known and the measures needed for control have been established; yet man still neglects to utilize this knowledge and continues deliberately to tolerate and to spread certain of these infections and infestations. Man's deliberate perpetuation of these common animal-human diseases, for which the cause and means of spread and control are understood, is inexcusable. Some factors influencing man's attitude on this matter may be the economic interests that affect the planning and execution of programs for the control and eradication of the diseases in this group. Biased political influences in the livestock and food industries, as well as in the transportation services, are major factors in preventing sensible and effective programs for the control and elimination of some of the animal-human diseases. Traditional prejudices and practices among the public also aid a great deal in delaying positive action on this matter.[1]

Rabies is an example of a disease common to man and animals for which effective methods of control and eradication have been proved and established. Apparently man does not choose to use them but instead deliberately tolerates the disease. Each year in the United States about 40,000 persons are bitten by rabid animals and are required to receive the Pasteur treatment. In the United States, control with a view toward final eradication of rabies should be on a national scale.

* Presented before the Conference of Public Health Veterinarians at the Seventy-eighth Annual Meeting of the American Public Health Association in St. Louis, Mo., October 30, 1950.

Trichinosis, a parasitic infestation of swine which is spread and perpetuated by the feeding of raw garbage to pigs, is transmissible to man by the consumption of infected pork. However, despite the fact that this infection can also be controlled and materially reduced with present-day knowledge, the incidence of trichinosis in the United States is said to be the highest of any country in the world.[2] Here again man continues to spread and perpetuate this condition and to expose himself and others to further health dangers. Instead of taking adequate measures for the control of this ancient disease, the problem has been approached by first assuming that all pork is trichinous. Consequently, programs to protect the public have taken the form of recommending that all unprocessed pork meat should be cooked thoroughly prior to eating.[3]

From time to time communicable diseases of man are found to be present in animals, domestic and wild, and perhaps are transmitted or spread by them; at least the animal may be the natural reservoir. Recently the *Public Health Reports* cited evidence obtained in Lea County, New Mexico, implicating cottontail rabbits for the first time in an active plague epizoötic.[4] This, in addition to our knowledge of tularemia, changes the opinion formerly held that the rabbit was not too great a hazard to man.[5]

In studying the epidemiological and epizoötiological aspects of the diseases common to man and animal or of those that involve animal vectors, the approach is similar to that used in the study of human diseases. This mutual public health problem, involving man and animals, should be studied and resolved by medico-veterinary coöperation. Unfortunately until recently this approach had not been emphasized. It has been stated by a present-day medical educator that one of the chief reasons for lack of a proper relationship between the physician and the veterinarian is that the doctor of medicine does not generally know as much as he should about animal diseases and, more especially, he does not know nearly as much as he should about the transmission of diseases from animals to man.[6] Mutual coöperation and understanding between the veterinarian and the physician would in all probability decrease the incidence of diseases, reported in the weekly *U. S. Public Health Reports*, such as the encephalitides, Rocky Mountain spotted fever, Q fever, tularemia, and rabies.

This situation can be corrected and improved operational procedures established by means of education. Education should start first with the veterinary student, to acquaint him with the responsibilities and relationships of his profession to medicine in safeguarding the health and welfare of man. The public health schools should provide the type of training that will make the veterinarian most effective in the public health field of disease control. It is extremely important that health officials be educated on this matter in order that the veterinarian may be used in the field in which he is skilled. The general public should be educated so that it will recognize the contributions the veterinarian can make in the control of communicable diseases and the value of his services in the protection of public health.[7]

Some problems of the public health trained physician and the public health trained veterinarian in the field of disease control are so thoroughly interrelated that it is difficult to separate them. The public health veterinarian is trained in the sciences dealing with problems of animal disease control. Should he not be used in such work in preference to a person who must first learn by experience? Usually medically trained men must acquire their experience in animal disease control while carrying out other responsibilities. The

veterinarian, skilled in this field, stands between man and animals as one-half of the public health buffer in the fight against those diseases common to man and animal.

Basically, the weapons needed by the veterinarian for an effective public health program are responsibility and authority. This man must be well trained and must possess the capabilities for such duties. An intelligent person, given the responsibility and authority, together with a desk, an office, and communication and transportation facilities, can advise, consult, and carry out the necessary "relations" with the professional agencies, the practitioners and the public, who in turn will put into effect and accomplish such disease control programs as may be conducted.

To carry out his primary objectives, the public health veterinarian should be the technical adviser and consultant to the public health officer, as well as to all divisions of the health department, on matters relating to animal health, comparative medicine, food control, hygiene, sanitation, legislation, and health education. To be most effective the public health veterinarian should not be in the engineering section or in the sanitation section but, instead, should participate directly as a consultant in disease control or epidemiology, where he can best aid and support this type of work.

Now what may our problems be during a national emergency? Primarily there may be an increase in the incidence of disease. This can be attributed to the confusion that may exist in disease control agencies during general mobilization. The movement of troops and their equipment and of animals through disease infected areas during maneuvers may act as a means of spread. Returning troops and equipment from foreign countries where various devastating animal diseases exist could introduce new diseases into this country. The clandestine spreading of current infections or the introduction of exotic infections should not be overlooked.[8]

How, then, should our services as veterinarians be utilized and where should our efforts be directed to the best advantage in solving the problems that are visualized during an emergency? The Military Veterinary Service's major responsibility is assisting the military surgeon in maintaining the health of the soldier. This includes the inspection of milk, dairy products, meat, meat food products, poultry, and sea foods to assure that only clean, safe, wholesome foods are purchased and issued for troop consumption. This inspection service aids directly and indirectly in maintaining the health of the civilian communities in which such activities are conducted. In event of a national emergency such skilled and technically trained personnel of the Military Veterinary Service would be extremely helpful in solving the many and varied problems that would arise relating to a safe food supply.

The military veterinarian is also responsible for protecting the health of the soldier against those diseases common to man and animals. This officer, with his experience and training in this field of preventive medicine, can be extremely helpful to the civilian health authorities of the community in which he serves and can aid in such problems that may appear during a national emergency.

The experiences of the Bureau of Animal Industry in combating the foot-and-mouth epizoötic in Mexico[9] and those of the Army Veterinary Service in the devastated countries of Europe may provide answers for some of the questions relating to civil defense.[10, 13]

To carry out the policy and proposed objectives of the Supreme Headquarters, Allied Expeditionary Force, European Theater of Operation, U. S. Army Veterinary officers were assigned to the Public Health Division of Civil Affairs Military

Government. These officers were used during the early planning stages as technical consultants and they provided technical advice and information on veterinary matters relating to public health, supply, and economics. For operational purposes, the success of this program of disease control depended almost entirely on three principles, namely:

a. The immediate reporting of each outbreak of disease.
b. The rapid institution of methods of control and quarantine.
c. The speedy distribution of necessary supplies to combat the particular condition. (Stock piles of emergency drugs, dressings, instruments, and biological products were assembled for this purpose.)

The established animal disease reporting system throughout the countries of Europe aided greatly in the collection of information on current animal disease outbreaks. The breakdown of civilian communications following D-day made rapid reporting difficult but the use of the military facilities overcame this obstacle.

It was realized from the very beginning that only with the help and cooperation of the veterinary practitioners and the existing civilian veterinary organizations of each liberated country and occupied area could this plan for disease control be achieved. Therefore, one of the initial actions taken after arrival on the European continent was to call on and meet the chief and director of the veterinary service of each country. In those countries that were not completely liberated in the first several months following the invasion, the government veterinarian available in the area involved was approached. At all these meetings the officials present were informed of the methods to be used by the Army Veterinary Corps to accomplish its responsibility in the control of animal disease. These officials were further oriented as to the assistance that could be expected from the military and as to the coöperation needed from the civil organizations for effective and satisfactory results.

In all cases full coöperation was assured and experienced.[13] Such support was almost immediately reflected in improved animal health and public health. These countries, at the time, were suffering hardships of an extent that could well be expected in the United States in the event of an enemy attack.

An established system of reporting the incidence of animal diseases is especially important for several reasons. For successful disease control one must know what diseases are present and where they are. This information, to be useful, should be made available as rapidly as possible. Such a reporting system, if in vogue now, would lend much toward establishing a base line of the normal incidence of the various animal diseases. Deviations from this base line could then be noted, measured, and evaluated to provide useful information upon which to base programs of investigation or control. Efforts have recently been made along this line by the Communicable Disease Center of the U. S. Public Health Service, Atlanta, in establishing a section for the collection and tabulation of animal disease statistics. The initiation of such a program will no doubt assist and encourage a more complete service of this kind within the several states.

In Europe and in Germany during the last war, we in the public health organizations of the military forces were interested not only in the diseases common to animals and man, such as glanders, anthrax, and swine erysipelas, but also in the diseases having economic effects. The proteins and animal fats throughout the world at that time were extremely scarce, and precautions were taken to conserve the animal populations and to prevent the spread of devastating animal diseases that would reduce the human food supplies. This problem was of

major concern to the United States and Canada, to a point where investigations for more effective means of controlling and protecting the livestock of these two great countries were conducted on a cooperative basis.[11] Foot-and-mouth disease, rinderpest, hog cholera, and the fowl diseases were among those studied in the National Defense Program.

In the war-torn areas, military and civilian authorities alike were seriously concerned with the problem of providing adequate amounts of proteins and animal fats for the worker. The mining of coal, the clearing away of rubble, the reestablishment of transportation and communications, reconstruction, the reactivation of industry, and the maintenance and gradual improvement of the health and welfare of the population all depended to a great extent upon the availability of animal protein and fats.

The veterinarian played an important part in this program of reconstruction. The Supreme Commander of the Allied Armies included on the staffs qualified public health veterinarians to plan and conduct programs of conservation and protection of the health of man and his livestock. Within the Public Health Divisions of the Army Command, the public health veterinarian was given important authority and responsibility, like the public health physician and public health nurse. This policy was also carried out in reestablishing the civilian medical and veterinary professions of Western Germany—the physician and the veterinarian being on the same level under a director of public health, the latter under the control of the German Ministry of the Interior.[10]

General McCallum, Chief of the U. S. Army Veterinary Service, in a paper presented June 14, 1950, at the Annual Conference for Veterinarians, Ohio State University, Columbus, Ohio,[12] has very wisely suggested:

> It is essential that organization and plans be effected to cope with any and all contagious livestock diseases that might break out and retard or affect the winning of a war. The organization and planning must include local, state, and national levels. Responsibility must be in a single organization with sufficient authority to handle the numerous problems on a nation-wide basis. It would be sheer folly to plan otherwise. Responsibility and authority to accomplish this job must be concentrated in one agency because 48 state veterinarians or even a lesser number attempting to operate separately in a national emergency could only result in chaos.
>
> We have an excellent organization in the Bureau of Animal Industry. It is charged by law with certain responsibilities involving interstate movement of animals and with the prevention or control of certain communicable diseases of animals whether or not involving interstate movement. In the event of war this bureau, in my opinion, is the organization to supervise, coördinate, and direct the civilian control of communicable diseases of livestock in all states. Some state officials may look aghast, fearing infringement of their rights. The latter is not intended, nor must it occur. State livestock officials would retain supervision and control within their respective states but under federal supervision, for purposes of coördinating the work throughout the United States and for liaison with other federal agencies such as Atomic Energy Commission, Department of Defense, Department of Justice, Federal Security Agency, Department of Interior, and governments of various states. The Federal Bureau of Animal Industry must also have authority to make calls on the several states to furnish supplies, equipment, and particularly personnel.

SUMMARY

The public health veterinarian can, with the authority and responsibility, together with the necessary liaison with the various local, state, and federal agencies, be most effective in helping to maintain and improve the health and longevity of man during times of peace as well as during national emergencies. Education and orientation of the public health officers and the general public in recognizing the contribution that the veterinarian can make in the control of communicable diseases and in recognizing the value of his services in the pro-

tection of the public health are major factors in accomplishing this end.

REFERENCES

1. Davenport, L. R. State Veterinary Public Health Programs and their Relation to the Federal Program. Presented at the Conference of Public Health Veterinarians held at the Communicable Disease Center, U. S. P. H. S., Atlanta, Ga., Aug. 12–18, 1950.
2. Steele, J. H. Veterinary Role in Public Health. Presented at the 68th Annual Meeting of the Illinois State Veterinary Medical Association, Peoria, Ill., Feb. 1–3, 1950.
3. Davenport, C. R. Relations of the Public Health Veterinarian. Presented before the Public Health Section of the American Veterinary Medical Association at the 87th Annual Convention, Miami Beach, Fla., Aug. 21–24, 1950.
4. Link, V. B. Plague Epizootic in Cottontail Rabbits. *Pub. Health Rep.* 65, 21:696 (May 26), 1950.
5. Link, V. B. Plague. *J. A. M. A.* 144, 5:375–377 (Sept. 30), 1950.
6. Slaughter, Donald. The Relationship of the Physician to the Veterinarian. Presented at the Annual Meeting of the South Dakota State Veterinarian Association, Sioux Falls, S. D., Oct. 5–6, 1949. *Michigan State College Veterinarian* 10, 3:118–120 (Spring), 1950.
7. Leeder, F. S. The Doctor of Veterinary Medicine and Communicable Disease Control. Presented before the Public Health Sections of the American Veterinary Medical Association at the 86th Annual Meeting, Detroit, Mich., July 11–14, 1949. *J. Am. Vet. M. A.* 116, 878:339–340 (May), 1950.
8. Butler, W. J. Veterinary Service for the Livestock Industry in War Time. Presented at the Annual Meeting of the Montana Stock Growers Association, Helena, Mont., May 22, 1942. *Vet. Med.* 37, 11:455–458 (Nov.), 1943.
9. *Summary of Developments in the Mexican Outbreak of Foot and Mouth Disease.* Bureau of Animal Industry, Agricultural Research Administration, U. S. Dept. Agr. (With supplementary information on U. S. cooperation in control measures, Jan. 28, 1947, as supplemented.)
10. Todd, Frank A. U. S. Army Veterinary Aid to European Governments During and Following World War II. Presented before the General Session of the American Veterinary Medical Association at the 86th Annual Meeting, Detroit, Mich., July 11–14, 1950. *J. Am. Vet. M. A.* 115, 873: 443–449 (Dec.), 1949.
11. Rinderpest. *Am. J. Veterinary Res.* 7, 23 (Apr.), 1946.
12. McCallum, J. A. National Security and the Veterinarian. Presented at the Annual Conference for Veterinarians, Ohio State University, Columbus, Ohio, June 14, 1950. Available in mimeograph form from the Veterinary Division, Surgeon General's Office, Department of the Army, Washington 25, D. C.
13. Todd, Frank A. Veterinary Preventive Medicine in Civil Affairs and Military Government (G-5) in Northwest Europe from D-Day to V-Day. Presented before the Second General Session, 83rd Annual Meeting, American Veterinary Medical Association, Boston, Mass., August 18–22, 1946. *J. Am. Vet. M. A.* 110, 841:209–212 (Apr.), 1947.

U. S. Marine Hospitals Change Name

Beginning July 1, 1951, hospitals operated by the Public Health Service under the name "U. S. Marine Hospitals" will be redesignated as U. S. Public Health Service Hospitals, thus providing a uniform designation for the 21 hospitals now operated by the Service and simplifying administrative procedures in their administration. Since the 1798 legislation creating a medical care program for merchant seamen, Congress has increased the number of groups entitled to treatment at the hospitals. Activities of the Hospital Service, in addition to patient care, include research and preventive medicine.

The Department of Agriculture Veterinarian and His Contribution to Public Health*

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VETERINARIANS in the Department of Agriculture are constantly engaged in a war with diseases of animals. Most of the veterinarians employed by the Department of Agriculture are in the Bureau of Animal Industry. Veterinarians are also employed by the Poultry Inspection Service of the Department to inspect dressed poultry for wholesomeness.

The need for veterinary service to control the diseases of animals was recognized by Congress as early as 1879 and again in 1884, when the Bureau of Animal Industry was established. The eradication of contagious pleuropneumonia was the first major accomplishment of the Bureau of Animal Industry, which came into existence on May 29, 1884.

The work done by Bureau of Animal Industry veterinarians, which lead to the recognition of the cattle fever tick, *Boöphilus annulatus*, as the carrier of Texas fever, has gone down in medical and public health history as having far-reaching effects on the control of various other diseases of man and animals. These veterinarians of the Bureau of Animal Industry were the first to discover that a disease may be caused by a microörganism transmitted exclusively through an intermediate host or carrier. The recognition of ticks as vectors in the spread of disease lead to the discovery of the mode of transmission of such dreaded diseases as yellow fever, malaria, typhus fever, African sleeping sickness, Rocky Mountain spotted fever, nagana, bubonic plague, and others. The discovery that yellow fever and malaria could be controlled through the elimination of the mosquito made possible the completion of the Panama Canal so expeditiously and with so little loss of human life. The completion of the canal gave to the world, and particularly the United States, a vastly improved means of communication and transportation.

The outstanding work of early veterinarians and scientists working in the veterinary field, such as D. E. Salmon for whom the *Salmonella* group of organisms was named, and such men as F. L. Kilborne, Theobald Smith, Charles Wardell Stiles, Cooper Curtice, and John R. Mohler, contributed greatly to our knowledge of animal diseases and their relationship to the health and welfare of man.

While the veterinarian in disease control activities is charged principally with protecting the health of livestock in this country, this work inevitably results in increased protection to the health of man through the reduction of the amount of disease in animals; in a marked increase in the number of animals available for food purposes; and in controlling

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those diseases of animals which are transmissible to man. It necessarily follows, therefore, that no great distinction can or should be made between the work of the veterinarian engaged in livestock disease control and the veterinarian whose interest is principally in the public health field.

Nearly 200 veterinarians are employed by the Poultry Inspection Service of the Production and Marketing Administration of the Department to inspect dressed poultry for wholesomeness. This service is on a voluntary basis, with the poultry packer reimbursing the Department for the cost of furnishing the inspection service. During the fiscal year 1950, the Federal Poultry Inspection Service inspected a total of 393,484,761 pounds of poultry, of which over 390 million pounds were inspected and certified for wholesomeness and nearly 3 million pounds were condemned as being unfit for human food. It is estimated that less than 10 per cent of the poultry consumed in the United States receives inspection by the Federal Poultry Inspection Service.

The health of animals is essentially a veterinary responsibility. Our livestock industry is constantly menaced by a vast horde of diseases and parasites which, if unchecked, could wreck an industry valued at over 15 billion dollars and would moreover deprive America and the world of essential meat, milk, poultry, and eggs. The extensive traffic in animals creates great problems in maintaining healthy livestock and preventing the spread of disease.

The federal laws which provide for the control and eradication of livestock diseases by the Bureau of Animal Industry refer both to "domestic animals" and "livestock." Because of this limitation, responsibility for the control of disease of dogs is handled by the U. S. Public Health Service of the Federal Security Agency and those of wild animals by the Fish and Wildlife Service of the Department of the Interior.

The work of veterinarians in practically eliminating bovine tuberculosis has had a notable effect on the incidence of this disease in our human population. Reports from some European countries indicate that tuberculosis in cattle is found in as high as 30–50 per cent of the cattle population, whereas in the United States the incidence of this disease has been reduced to less than 0.2 of 1 per cent. The largest number of reacting cattle ever found in the United States was 4.9 per cent in 1918. During the past 10 years, between 8 and 12 million cattle have been tuberculin tested each year.[2]

It is rare, indeed, to see an American child with a hunch back as a result of infection with bovine tuberculosis. Virtual eradication of this disease in cattle has nearly eliminated one very important source of infection in children and in adults who might be exposed to the infection through direct contact or consumption of milk from tuberculous cattle.

Avian tuberculosis continues to be a problem, but real progress has also been made in this field. Avian tuberculosis is readily transmitted from poultry to swine. It is estimated that 95 per cent of all swine tuberculosis is due to the avian type of the disease. Under federal meat inspection, however, retentions of swine on account of tuberculosis have been reduced from 15.2 per cent of hogs slaughtered in 1924 to 5.6 per cent in 1949.[2] "Retentions" are those carcasses showing either slight or extensive lesions of tuberculosis, for which condemnations are made of parts of carcasses or entire carcasses. This reduction in avian tuberculosis is due largely to educational work done by veterinarians, who urged the destruction of all diseased birds and improved poultry husbandry practices whereby hens are kept for only one laying season. Very little avian tuberculosis is found in chickens under 1 year of

age. When birds are retained beyond the first year of age for breeding purposes, an annual tuberculin test is recommended by the National Poultry Improvement Plan. All reactors should, of course, be removed from the flock and slaughtered.

Brucellosis is another disease of domestic animals readily transmitted to man. The importance of this disease is further emphasized when it is realized that its eradication from domestic animals would eliminate the only source of infection to man.

Glanders, which was once an important disease of human beings, is now almost nonexistent as a result of the virtual eradication of this disease in horses. While anthrax still continues to be a disease of some concern to people in the wool and tanning industries who manipulate imported wool and hides, this disease is now being effectively controlled in the United States by regular vaccination of animals raised in those areas where anthrax is known to exist.

Laws have been passed [3] which provide for the quarantine of diseased animals to prevent the spread of disease. This control has been more effective than control of our human population. For example, a person with tuberculosis in the transmissible stage may travel from New York to California, eating in the dining car, visiting in the club car, and sleeping in the same bed which will be used by someone else the next night, all of this without being followed by adequate cleaning and disinfection. If, however, a tuberculous cow were to travel from one state to another, she would be in strict quarantine and the car in which she traveled would be thoroughly cleaned and disinfected under the supervision of a Department of Agriculture veterinarian or his assistant.

The control which veterinarians have over the movement of diseased livestock probably accounts in great part for the success we have had in controlling animal diseases. Animals which move from state to state are inspected to assure their freedom from communicable diseases. In coöperation with the Veterinary Livestock Services of the various states, very effective procedures have been established to prevent the spread of diseases of animals.

Animals brought into this country from foreign countries, in addition to being accompanied by health certificates, are given a rigid inspection, and those from most countries of the world are required to remain in quarantine until such time as we have assurance that no communicable diseases are being carried by the animals. In a recent shipment of camels from Egypt which were intended for distribution to 20 zoological parks in this country, ticks were found which are known to be carriers of East Coast fever and other diseases transmissible to man. These ticks, nonexistent in North America, were destroyed at the port of entry before the camels were released from quarantine.

Veterinarians of the Department of Agriculture charged with the administration of the animal quarantine Acts have established safeguards which have been very effective in preventing the entrance of foreign plagues into the United States. Contagious pleuropneumonia of cattle and European fowl pest are notable examples of devastating diseases of livestock and poultry which have been eradicated from this country and have never returned. The Department has proved that foot-and-mouth disease and rinderpest, both serious diseases in many foreign countries, can be kept out of our country through strict control over the entry of animals, animal products, and such materials as hay and straw which might introduce these deadly viruses to our livestock. Foot-and-mouth disease successfully eradicated on six different occasions, has not gained entrance into the United States since 1929, when it was introduced into a herd of hogs

which had been fed garbage from a foreign ship. Eradication was accomplished without delay and our country has enjoyed freedom from this dread malady for 21 years.

Internal and external parasites of animals cause great economic losses. Department of Agriculture veterinarians are constantly on the alert to detect those parasites which are known to affect our livestock economy seriously. Some of these parasites, notably the cystic form of the tapeworms of man, *Taenia solium*, and *Taenia saginata*, are frequently found in the muscles of hogs and cattle respectively. Breaking the cycle from man to animal, and animal to man, leads to effective control of this parasite in man.

Erysipeloid infection in man is caused by the same organisms that cause erysipelas in hogs. Vaccines have been prepared and their use is permitted under licenses to control this serious disease of hogs.

As early as 1879[1] certain foreign countries began to place restrictions on the entry of animals and meat from the United States. In that year, Great Britain put into effect a restriction that American cattle be slaughtered within 10 days upon the docks where they were landed, and Italy and Austria-Hungary prohibited the importation of American pork, alleging the presence of trichinae. In the years that followed, several other countries joined in placing restrictions on the importation of American meat. In order to meet the objections of these countries, Congress enacted the first meat inspection legislation, which was approved August 30, 1890.[1] This legislation provided for the inspection of salted pork and bacon intended for export and the inspection of export cattle, sheep, swine, and other ruminants. Since this law did not provide for the post-mortem inspection of meat animals, it was not acceptable to several foreign countries, and the law of March 3, 1891[1] was enacted which provided also for post-mortem inspection.

The laws of 1890 and 1891 afforded little protection to the American meat-consuming public. As the result of a great public clamor for protection against the appalling conditions reported to exist in meat packing plants, President Theodore Roosevelt directed a thorough investigation of conditions in the meat packing industry. This was followed by passage of the Meat Inspection Act of 1906,[4] which provided that all meat and meat food products for sale in interstate or foreign commerce must be prepared in establishments inspected by inspectors appointed for that purpose. This law authorized the Secretary of Agriculture to have all animals examined and inspected before being sent to slaughter, as well as providing for a thorough post-mortem inspection of all animals which had been passed on ante-mortem inspection. This law also provided for sanitary controls and for examinations which would assure the sale of only such meat as is clean, sound, wholesome, free from adulteration, and truthfully labeled.

The federal control does not extend to meat packing plants that confine their sales to the state in which the product is prepared. During the fiscal year 1950,[5] however, over 77 per cent of all cattle, calves, sheep, and swine slaughtered commercially were under the supervision of the Federal Meat Inspection Service. Some of the 23 per cent of animals slaughtered commercially, but not under federal inspection, do receive ante-mortem and post-mortem inspection by veterinarians, but there are still many sections of our country where there is no inspection whatsoever or the inspection is inadequate. This constitutes a real challenge to public health officials and those concerned with the health of animals.

All animals intended to be offered for slaughter in federally inspected establishments are examined by veteri-

narians and specially trained lay assistants. All animals found to be affected with a condition which would make them unfit for food are condemned and are not permitted to be taken to the slaughtering floor. Occasionally the owner may elect to hold the sick animals and treat them. When released for treatment these animals are subject to the quarantine or other controls usually exercised by livestock sanitary or health department officials.

Animals which are suspected of having a condition that might cause their condemnation in whole or in part are given a careful examination and tagged as "U. S. Suspect." Such animals are slaughtered separately and apart from those animals which have been passed on ante-mortem inspection, and are given post-mortem examination, at which time all the ante-mortem findings are made available to the veterinarian conducting the post-mortem inspections. Ante-mortem inspection on the day of slaughter is essential to a well rounded meat inspection program. Diseases such as rabies, tetanus, listerellosis, milk fever, and similar conditions which do not demonstrate gross pathological lesions might be unnoticed by the post-mortem inspectors. Only animals which have passed ante-mortem inspection proceed to slaughter.

Every step in the cleaning, dressing, and eviscerating is carefully supervised by veterinarians and their lay assistants. All dressing operations are required to be so conducted as to remove every possible means of contaminating the meat. Great care is taken to see that all hair, scurf, and dirt are removed from hog carcasses and that the hides and pelts of other animals are removed under conditions which will prevent contact of the soiled hide or pelt with the meat. Care is also taken to remove the entire viscera of the carcass in such a way as to eliminate any possibility of contaminating the carcass with ingesta or urine.

Carcass dressing operations vary with the species of animal slaughtered and with the equipment and facilities provided for handling the carcasses. In some of the smaller establishments the animals are dressed with equipment which permits the handling of only a few animals per hour; whereas at some of our large well equipped establishments, cattle are slaughtered over conveying equipment up to about 150 per hour and hogs are slaughtered over a conveyor system up to 660 per hour. Each inspector is assigned definite responsibilities, so that each carcass receives a complete inspection sufficient to assure the removal of all diseased or otherwise unfit carcasses or parts of carcasses. Each part of the carcass and viscera is readily identifiable until the inspection has been completed.

A review of the annual report of the Federal Meat Inspection Service reveals the wide range of conditions which may cause meat to be unfit for human food. Many of the conditions found would be unnoticed by the untrained person. Time will not permit mention of all these conditions but some of the outstanding observations are worthy of mention. During the past year,[5] over 300,000 animals were condemned in their entirety as being totally unfit for human food. Among the degenerative and dropsical conditions observed, emaciation causes the condemnation of thousands of carcasses each year. The conditions causing the largest number of condemnations are pleurisy and pneumonia. For reporting purposes, these conditions are not separated.

Over 63,000 animals were condemned last year on post-mortem inspection for pleurisy or pneumonia. Malignant neoplasms also cause a large number of condemnations, particularly in cattle. Over 7,000 cattle carcasses were condemned on post-mortem inspection because of malignant neoplasms. Nearly 2,000,000 parts of carcasses, such as

heads, hams, and shoulders, were condemned during the year because of conditions which would make then unfit for human food. Over 1,600,000 cattle and calf livers were condemned and destroyed for food purposes. In addition, several million hog and sheep livers were also condemned.

When carcasses or parts of carcasses are condemned as unfit for human food, they are destroyed for food purposes. This is usually accomplished by thorough cooking in specially separated inedible product rooms and the cooked product is decharacterized. The condemned material may be incinerated or thoroughly slashed and decharacterized with such materials as crude carbolic acid. The destruction of such diseased materials is assurance that the disease organisms have come to the end of the road and will not be spread to man or other animals.

The existence of trichinae in pork has long been recognized. Sensational and exaggerated reports concerning the extent of trichinosis in the United States in the late 19th century served to limit the acceptance of our pork in foreign countries. From 1890 to 1906, trichinoscope examinations were made of pork prepared for export. Because a negative finding could not be accepted as assuring freedom from trichinae, this system of inspection has not been used since that time.

Such products as fresh unsmoked sausage containing pork muscle tissue and other products, such as ham and bacon which are well cooked in the home or elsewhere before being served, are not required to be treated to destroy possible live trichinae. All products containing pork muscle tissue, including pork hearts and pork livers, of a kind which may be eaten without further cooking, are required to be treated by one of the methods known to destroy any possible live trichinae. Pork cuts, such as hams and pork shoulder picnics, which are subjected to heating at sufficiently high temperature to impart a partially cooked appearance to the meat, and such products as bologna and frankfurters fall in the category of products which are made safe. While heating to at least 137° F. is the most commonly accepted method used for making the pork safe, many pork products are made safe by freezing the pork at definitely prescribed temperatures and for periods of time which are known to make the product safe. The minimum time and temperature accepted is 5° F. for 20 days.[4] For such products as dry sausage, and for certain types of pork cuts, such as capocollo and certain dry cure hams and loins, processes including curing and drying have been established which will also kill any possible live trichinae.

The methods which have been prescribed in the federal meat inspection regulations have been carefully checked and are rigidly enforced in establishments operating under the inspection. The incidence of trichinosis in pork is very slight in those areas where uncooked garbage is not fed.

Under the system of education found in the United States, the veterinarian is the only one trained and qualified to judge the health of animals. Since the beginning of federal meat inspection in the United States, the inspection in slaughtering establishments has been done by veterinarians, often assisted by specially trained meat inspectors.

Poorly nourished, parasitized or diseased herds and flocks produce little acceptable meat, milk or eggs. The veterinarian engaged in disease control activities must remain alert to preventing the entrance of new or foreign diseases into this country and to controlling or eradicating those diseases which are a threat to our livestock economy. The removal of diseased or otherwise unfit meat animals and poultry from our food supply ties in with the animal disease

control program, and by the combined efforts of these veterinary groups the public is assured of a continued ample supply of meat, milk, eggs, and poultry from healthy animals and birds.

REFERENCES

1. Houck, U. G. *The Bureau of Animal Industry of the United States Department of Agriculture, Its Establishment, Achievements, and Current Activities* (1924). pp. 27, 10, 255.
2. Report of the Chief of the Bureau of Animal Industry, Agricultural Research Administration (1949). U. S. Dept. Agr. pp. 88, 89.
3. Regulations Governing Interstate Movement of Livestock. Agricultural Research Administration, U. S. Dept. Agr. Bureau of Animal Industry Order 309.
4. Regulations Governing the Meat Inspection of the U. S. Department of Agriculture (1947). Agricultural Research Administration. pp. 162, 94.
5. Summary of Activities, Meat Inspection Service, Fiscal Year 1950. Bureau of Animal Industry, Agricultural Research Administration, U. S. Dept. Agr.

Montana Ready for Health Units

The Montana State Board of Health has recently issued standards governing the eligibility of local public health services for state aid. In setting up the standards, the Board said its aim was (1) to encourage establishment and maintenance of local full-time health departments, and (2) to develop the maximum local responsibility for health services.

The Board at the same time allocated $67,000 for local grants-in-aid during the new fiscal year. Priority for grant of funds runs in this order: departments combining two or more counties, existing single county full-time departments, single counties newly setting up full-time services, and last, counties having or planning to set up local public nursing and sanitarian services.

Shortly after these standards were adopted, citizens of 5 northeast counties with a combined population of about 41,000 began discussion of a district health department.

The eligibility standards are summarized in Vol. 1, No. 1 of *Treasure State Health*, the new official bulletin of the State Board of Health, which appeared in July. It also reports the endorsement of the Montana Public Health Association for the use of state funds to stimulate the growth of local health departments.

The Longevity and Behavior of Pathogenic Bacteria in Frozen Foods: The Influence of Plating Media*

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RECENT studies on the bacteriology of frozen foods indicates that if the information of a control laboratory is utilized by those persons responsible for the handling, processing, and storage of the food, satisfactory standards of quality can be obtained—and maintained. However, the introduction of pathogenic bacteria into the food may not always be avoided. That the industry has reduced this health hazard to the consumer is quite evident from the rarity of incidents wherein a frozen food has been found responsible for an epidemic or for an isolated case of enteric infection.

Nevertheless, the bacteriologist, the sanitarian, and the government official having the responsibility of establishing microbial standards of quality for frozen foods are always interested in the efficiency of their methods. In 1947 Fitzgerald [1] expressed the belief that "Laboratory methods of detecting the incidence of toxigenic or pathogenic strains of organisms are presently inadequate, and frozen foods may momentarily be implicated as health hazards." Recently Goresline [2] expressed the need for much greater agreement in the methods for the microbial examination of foods, whether frozen or not.

Berry [3] and many other investigators have called attention to the factors that influence the survival of bacteria when frozen. However, important considerations are also operative when testing the survival of germs *after* exposure—for example, the plating medium and the temperature of defrosting. Little experimental work has been done on these phases of viability studies.

The need for the development of methods to be used when finding pathogens in frozen foods were of major interest in this investigation. An appraisal of the significance of culture media for routine plating and for the differentiation of pathogens is fundamental in any such studies. Therefore, experimental conditions were established to observe the survival and behavior of certain pathogens on frozen beef and peas, while checking the effectiveness of certain culture media to recover viable cells. Longevity studies on pathogenic bacteria in such frozen foods are a means of assessing their potential health hazard in the event of accidental contamination.

BACKGROUND INFORMATION

Much of the bacteriology of frozen foods has been studied by previous investigators, chiefly from two approaches —the significance of coliform bacteria and the reduction of bacterial numbers as a consequence of the freezing process. Little is known about the resistance of pathogens to subfreezing temperatures. Considering the carrier condition which

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may develop in some handlers of frozen foods, further information is needed regarding the longevity and behavior of these bacteria should they be introduced inadvertently into or on foods.

The investigations of McCleskey and Christopher,[4] and also of Wallace and Park,[5] showed that *S. typhosa, S. schottmuelleri* and other pathogens could survive subfreezing temperatures of — 18° C. for many weeks. Strawberries or sour cherries were the menstrua upon which the test species were inoculated. Only in the report of McCleskey and Christopher was special mention made of the plating media. Endo and E.M.B. agar were discontinued after a time because bismuth sulfite agar supported the growth of exposed *S. typhosa* cells much better. Presumably some inhibitive effect had been noted.

Gunderson and Rose[6] inoculated chicken chow mein with six species of *Salmonella* and observed their survival for nine months at —14° F. (25.5° C.). *S. typhosa* appeared to be the most susceptible of all species, while *S. typhimurium* was very resistant to this temperature. These authors also call attention to the comparative value of tryptone glucose extract agar and violet red bile agar for supporting the growth of *E. coli* and *Aerobacter aerogenes* after freezing. The latter medium was found to be inhibitory to these bacteria. They observed, "Coliform counts in cold-stored food, determined by selective medium cultivation may be only 12 to 25 per cent accurate. Any standard of bacterial purity must take this fact into consideration." Violet red bile agar was also inhibitory to *S. newport* and *S. paratyphi A*, when frozen in chicken chow mein. This study was one of the first wherein special attention was given to the influence of plating media when determining the survival of bacteria after subfreezing temperatures.

Nelson,[7] and Curran and Evans,[8] considered that the plating medium used for the recovery of exposed cells was very important. Bacterial cells, or their spores, having been subjected to heat and other lethal agencies, had had their metabolism altered in some way; therefore, they were more demanding in their nutrition. The presence of a readily available carbohydrate, glucose, as well as yeast extract or beef infusion in the agar, would permit greater recovery of surviving cells. Similarly, Hartsell observed the beneficial effects of yeast water, when added to glucose tryptone agar,* for bacteria present in spray-dried, whole-egg powder. Little is known about how frozen cells respond to such influences.

Current standard methods (A.O.A.C.,[9] A.P.H.A.—Goresline[10]) include a procedure for the examination of coliforms in various frozen foods. The media and techniques to be used when the investigator is interested in pathogens are specified only in *Standard Methods for the Examination of Dairy Products*. Should salmonellas, shigellas, or enterotoxigenic staphylococci be suspected in frozen foods, the methods frequently used with fecal specimens would presumably be applied, even though little is known about the nutritional requirements of these bacteria after having been frozen. The present report has to do with studies on the cultivation of representative species of these genera from frozen peas and beef, after storage at — 9° and — 17.8° C.

EXPERIMENTAL

Commercially packed peas were made as free of bacteria as possible by repeated washings in sterile distilled water.

The washed peas were then inoculated by immersion in an 18-hour YE-VI (yeast extract-veal infusion) broth cul-

* Yeast extract (Difco) 1.0%, 100 ml. of veal infusion from Difco desiccated veal, 0.5% tryptone, 0.5% protease peptone, 0.5% NaCl, 2% agar and water, pH 7.0.

ture of the test species (*S. typhosa, S oranienburg, S. aertrycke, S. dysenteriae* or *M. aureus,* all stock strains). After two minutes the peas were removed and dispensed into sterile paper cups provided with lids. The procedure was repeated until the desired number of samples had been packaged, sharp frozen at — 25° C. and then stored at — 9° and — 17.8° C. At stated intervals, the peas were defrosted in a water bath at 37° C. for 5 minutes, removed aseptically from the cup, and blended for 2 minutes. Decimal dilutions in phosphate buffer (pH 7.0) were prepared and 1 ml. aliquots plated. The plating media were as shown in the tables.

The beef samples were prepared by thoroughly searing the cut surfaces of fresh beef, round or loin, cutting a cylinder through the meat with a sterile cork borer, and immersing this sample (approximately 10 gm.) in a suspension of known density of the test species. The inoculated samples were wrapped in sterile foil paper, inserted into a sterile test tube, and quick frozen at — 25° C. After 4 hours, they were transferred to freezers having temperatures of — 9° or —17.8° C. The determination of viable cells involved defrosting the sample at room temperature for 3 minutes, removing the foil aseptically, blending the sample in 90 ml. of sterile phosphate buffer (pH 7.0), diluting the sample, and transferring 1 ml. aliquots to Petri dishes. All platings were in triplicate. YE-VI agar, or the selective medium appropriate for the test species, was then poured into the plates. After 48 hours of incubation at 37° C., total plate counts were obtained in the usual way.

When any of the cultures on frozen peas indicated that a negative count might be anticipated, liquid enrichment media were inoculated—Selenite F broth, tetrathionate broth, or Leifson's medium, as modified by S. G. Dunlop (personal communication) for the Salmonellas, and YE-VI broth for *M. aureus.*

TABLE 1

Comparison of Plating Media (Frozen Peas)

Pathogenic Organism	*Plating Media* *	*Time in Weeks at — 9° C.*			
		0	*6*	*9*	*12*
S. typhosa	1	33.4 †	*0.175* ‡	*0.16*	*0.124*
	2	14.3	*0*	*0*	*0*
	5	6.6	*0*	*0*	*0*
S. aertrycke	1	14.55	*0.0028*	*0*	*0*
	3	5.85	*0*	*0*	*0*
	5	8.75	*0*	*0*	*0*
S. oranienburg	1	28.45	1.74	0.16	0.273
	3	12.50	0.96	0.076	0.09
	5	6.44	0.75	0.10	0.061
M. aureus	1	29.63	5.72	1.87	0.227
	4	29.87	6.30	1.75	0.12

* 1 = Yeast extract-veal infusion agar,
2 = MacConkey agar,
3 = Desoxycholate,
4 = Staphylococcus Medium No. 110,
5 = Violet red bile agar.

† Figures are for plate counts X 10^6.

‡ Italic figures indicate samples which were confirmed for the test species.

Points:

1. *S. typhosa* survived only a short time on frozen peas. (Figures are for plate counts X 10^6.)
2. MacConkey agar was very inhibitory, though not as much so as violet red bile agar.
3. The order of death was very rapid; since YE-VI agar observed viable cells to be present after 12 weeks (and all of these were confirmed as *S. typhosa*), the need for essential metabolites after freezing is obvious.
4. The same holds true for *S. aertrycke*, although it was dead in 9 weeks. Desoxycholate agar was the selective plating medium.
5. *S. oranienburg* survived quite well for 12 weeks and apparently withstood the inhibitory effects of desoxycholate and violet red bile agar.
6. *M. aureus* was killed quite rapidly at first, but survived in relatively large numbers for 12 weeks. Staphylococcus Medium No. 110 was about as effective as YE-VI agar.

TABLE 2

Plating Media—Peas

Pathogenic Organism	*Time in Months at — 17.8° C.*				*Per cent Total Reduction*
	0	*2*	*5*	*9*	
S. typhosa	28.50 *	0.50	1.25	0.269	99.06
	18.20	0.01	0.20	0.003	99.98
	2.65	0.01	0.01	0.003	99.89
S. aertrycke	26.50	1.75	1.45	1.22	95.40
	16.10	0.007	0.01	0.055	99.66
	18.55	0.017	0.01	0.059	99.68
S. oranienburg	29.00	2.80	2.99	1.00	96.55
	12.55	0.27	0.50	0.34	97.29
	17.80	0.09	0.43	0.85	95.22
M. aureus	76.95	22.00	35.05	20.60	73.23
	77.01	19.90	21.45	19.10	75.20

Points:

1. This table shows the survival of the test species on peas stored at — 17.8° C. Note that the time is expressed in months.* Figures are for plate counts X 10^6.
2. During the first two months the reduction in numbers was most rapid, as expected.
3. After 9 months, viable cells were still present; however, much larger numbers were detected on YE-VI than on any of the selective media.
4. The resistance of *M. aureus* and the effectiveness of Staphylococcus Medium No. 110 is again evident.

It seems plausible that the resistance of this species is intrinsic within the cells and not necessarily correlated with the nutritive value of the plating medium used to recover cells, or to the physical conditions of the menstruum on or in which it is frozen.

5. Though not shown in the tables, *S. dysenteriae* was dead after 2 weeks at —9° and —17.8° C., according to the platings with MacConkey agar, violet red bile agar, and desoxycholate agar. This was not representative of the true viability of this species. YE-VI agar showed viable cells to be present after storage of the peas for 15 weeks.

LONGEVITY AND BEHAVIOR ON FROZEN BEEF

When the test species were frozen and stored on beef muscle, survival time of the bacteria had to be expressed in months, rather than weeks. The cultures were markedly reduced in numbers of viable cells during the early storage periods, but the order of death was much less rapid as time continued. This suggests that only the more vigorous cells in the culture remain to be recovered at subsequent plating periods (see Tables 3 and 4).

TABLE 3

Comparison of Plating Media
(Frozen Beef)

Pathogenic Organism	*Plating Media* *	*Time in Months at — 9° C.* 0	2	4	8	*Per cent Total Reduction*
S. typhosa	1	55,000	31,500	13,160	3,560	93.5
	2	46,600	2,860	30	16	100
	% difference	13.5	90.9	99.8	99.6	
S. aertrycke	1	49,300	29,400	16,600	15,330	68.9
	3	45,000	17,500	6,900	3,930	91.3
	% difference	8.7	40.5	58.4	74.4	
S. oranienburg	1	71,300	11,560	1,050	226	99.7
	3	60,000	400	40	16	100
	% difference	15.8	96.5	96.2	92.9	
M. aureus	1	20,500	13,900	——	11,550	43.7
	4	18,300	10,850	——	14,050	23.2
	% difference	10.7	21.9		17.8	

Points:

1. Survival was expressed in months.
2. *S. typhosa* did not die as rapidly in the first 2 months and survived for a surprisingly long time (over 90 per cent reduction in 8 months).
3. Note the per cent differences in the plating media. The data obviously favor YE-VI agar.
4. *S. aertrycke* survived rather well for the 8 months—only 69 per cent reduction in this period. However, desoxycholate agar showed 91 per cent reduction. Again the data were in favor of the YE-VI agar.
5. With desoxycholate agar, or YE-VI, it is noted that *S. oranienburg* died rather rapidly and after only 2 months of storage, desoxycholate agar was very inhibitory.
6. *M. aureus* survived much better on beef than on peas. It should be recalled that the difference in the initial populations was very great. Even though fewer cells were present on the beef, the manner of handling the sample permitted less moisture evaporation of the beef, which probably was an important factor in the differences in survival.

TABLE 4

Plating Media Comparison—Beef

Pathogenic Organism	*Time in Months at — 17.8° C.* 0	2	4	8	*Per cent Total Reduction*
S. typhosa	84,100	46,150	25,350	29,560	64.9
	42,000	7,400	3,660	2,860	93.2
	50.1	84.0	85.6	90.3	
S. aertrycke	158,000	26,050	43,300	30,000	81.0
	159,000	21,350	35,000	21,000	86.8
	0.6	18.0	19.2	30.0	
S. oranienburg	124,000	51,150	30,000	30,850	75.1
	63,000	26,100	12,000	11,100	82.4
	49.2	49.0	60.0	64.0	
M. aureus	42,300	26,530	24,800	17,050	59.7
	33,300	22,150	23,400	13,700	58.9
	21.3	16.5	5.6	19.6	

Points:

1. Again we note the survival of larger numbers of cells in each test species.
2. Note the inhibition of the test media in the case of *S. typhosa* and *S. oranienburg*.
3. *S. aertrycke* was not inhibited quite as much when peas were the storage menstrua and desoxycholate agar was the plating medium.

SUMMARY

The data show that certain pathogens when frozen on beef or on peas will survive for many months at — 9° and — 17.8° C. The cells seem to have had their metabolic requirements markedly altered, since a highly nutritive medium, YE-VI agar, will recover much larger numbers than the selective media, MacConkey agar, desoxycholate agar or violet red bile agar. The inhibitory effects of these selective media increase as the storage of the infected food is continued at subfreezing temperatures.

Greater destruction of cells on frozen beef or peas was observed at — 9° C. than at — 17.8° C. Species variation was noted in the resistance of the pathogens to these temperatures.

The cultures, in order of greatest to least resistance when stored on frozen beef or peas, were *M. aureus, S. oranienburg, S. typhosa,* and *S. dysenteriae.*

The enrichment media—Selenite F broth, tetrathionate broth, and modified Leifson's medium—were of little value when recovering the pathogens from frozen peas because of marked inhibitory effects.

These findings are in agreement with those of Gunderson and Rose, who have suggested that bacterial standards of quality, when established, must take into account the inhibitory effects of plating media, especially if the standard relates to the enumeration of pathogens. Apparently the freezing process, in common with the application of heat to foods, alters the nutritional requirements of bacteria—at least, more viable cells can be detected if they are given a booster dose of needed metabolites. YE-VI agar accomplished this purpose very well in the present experimentation. Without such a medium the pathogen may not be detected and false confidence regarding its significance in a food may result. The impressive longevity of the pathogens on the frozen beef, observed in this study, should be recalled in this connection.

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REFERENCES

1. Fitzgerald, G. A. Are Frozen Foods a Public Health Problem? *A.J.P.H.* 37, 6:695–701 (June), 1947.
2. Goresline, H. Methods for the Microbial Examination of Foods. *A.J.P.H. Yearbook,* 39:83–85, 1948–1949.
3. Berry, J. A. Bacteriology of Frozen Foods. *J. Bact.* 51, 639, 1946.
4. McCleskey, C. S., and Christopher, W. N. Some Factors Influencing the Survival of Pathogenic Bacteria in Cold-Pack Strawberries. *Food Research* 6, 327–333, 1941.
5. Wallace, G. I., and Park, S. E. Microbiology of Frozen Foods. IV. Longevity of Certain Pathogenic Bacteria in Frozen Cherries and in Frozen Cherry Juice. *J. Infect. Dis.* 52, 146–149, 1933.
6. Gunderson, M. F., and Rose, K. D. Survival of Bacteria in a Precooked, Fresh Frozen Food. *Food Research* 13, 254, 1948.
7. Nelson, F. E. Factors Which Influence the Growth of Heat-treated Bacteria. I. A Comparison of Four Agar Media. *J. Bact.* 45, 395–403, 1943.
8. Curran, H. R., and Evans, F. R. The Importance of Enrichments in the Cultivation of Bacterial Spores Previously Exposed to Lethal Agencies. *J. Bact.* 34, 178, 1937.
9. Assn. of Official Agric. Chem. *Methods of Analysis.* (6th ed.), 1945.
10. Goresline, H. E. Microbiological Examination of Foods. Tentative Methods for the Microbiological Examination of Frozen Foods. *A.J.P.H.* 36, 4:332–335 (Apr.), 1946.

in vitro and *in vivo* Tests with Newer Antibiotics against *Endamoeba histolytica**

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SEVERAL reports on the *in vitro* activity of antibiotics on *Endamoeba histolytica* are available in the literature, of which those of Bradin and Hansen[1] and Thompson, *et al.*[2] are perhaps the most comprehensive. Due to the difficulties encountered in isolating and maintaining *Endamoeba* strains in the laboratory, tests with freshly isolated organisms have been lacking. In addition, the effect of small amounts of antibiotics has not as yet been studied to a satisfactory degree.

This paper presents the average growth curves obtained by testing antibiotics in concentrations ranging from 10^4 to 10^{-10} units or μg. per ml. fluid test medium, using three freshly isolated *E. histolytica* and two standard laboratory strains, one obtained from Dr. P. E. Thompson of Parke, Davis & Company, the other from Dr. W. Balamuth of Northwestern University. The medium used for growing the amebas was that of Balamuth and Sandza.[3] The enumerations of viable organisms were carried out 48 hours after inoculation, using the dilution-slide count method.[4]

Table 1 shows the results of these studies. With the exception of streptomycin and polymyxin, all antibiotics tested in this series were active against *E. histolytica in vitro*. Three forms of penicillin and fradicin were found effective against the amebas, but in amounts exceeding the expected concentration of these drugs in the intestines. Chloromycetin, aureomycin, terramycin and neomycin were effective in doses the multiples of which can be easily maintained in the human bowel (127 μg., 37 μg., 11 μg, and 73 units respectively). One culture failed to respond to bacitracin. All of the strains, however, were inhibited by iodinized bacitracin † (137 units). Prodigiosn,† an antibiotic highly active against blood flagellates, checked *E. histolytica* in adequate doses (15 μg.). Small amounts of aureomycin, terramycin, and neomycin stimulated the multiplication of the amebas.

Aureomycin, chloromycetin and terramycin in subinhibitory doses caused the appearance of numerous cysts in the cultures. These antibiotics, together with neomycin, frequently evoked the production of giant trophozoites, probably due to the inhibition of nuclear division, with simultaneous enlargement of the cytoplasm. Such giant trophozoites engulfed starch granules from the culture medium to a greater extent than apparently normal trophozoites, so that many of them appeared literally filled with starch.

In animal experiments, using the Stewart and Jones technic,[5] favorable results were obtained by a number of

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 3, 1950.

† Commercial Solvents Company.

TABLE 1

Action of 12 Antibiotics on E. histolytica Strains in vitro

Antibiotic	*Average minimal dose per ml. medium effecting*		
	Total Inhibition	*Reduction of Amebic Count by 25 Per cent or More*	*Increase of Amebic Count by 25 Per cent or More*
Penicillin G *	10^3	3×10^1	—
Allylmercaptomethyl penicillin *	10^3	8×10^{-1}	—
1, 2-diethyl-2-diaminoethanol penicillin *	10^3	2	—
Aureomycin †	37	8	10^{-5} to 10^{-7}
Chloromycetin †	127	51	10^{-6} to 10^{-7}
Terramycin †	11	2	10^{-4} to 10^{-6}
Neomycin *	73	7×10^{-1}	10^{-7}
Bacitracin J *	137	1	—
Fradicin †	12	1×10^{-1}	—
Prodigiosin †	15	2	—
Polymyxin D *	1,000	1	—
Streptomycin †	1,000	175	10^{-6} to 10^{-8}

* = in units
† = in micrograms

antibiotics. The results are shown in Table 2.

TABLE 2

Action of Antibiotics on Amebiasis in Mice

Antibiotic	ED_{85}‡ *in Groups of 6 Rats per kg. per os*
Aureomycin †	3,000
Chloromycetin †	1,000
Terramycin †	1,000
Neomycin *	6,500
Bacitracin *	6,000
Prodigiosin †	650

* = in units.
† = in micrograms.
‡ = preventing amebiasis in 85 per cent of animals when given daily for one week.

Since amebiasis in man is seldom without additional lesions caused by secondary invaders, those combinations of antibiotics were tried which could be expected to reduce all components of the intestinal flora, including anaerobes, and at the same time to inhibit the multiplication of amebas. Experiments were carried out, therefore, with pairs of antibiotics—one of them more active against Gram-negative, the other against Gram-positive bacteria, including anaerobes. Bacitracin seemed to fit best the latter requirement. Gould and Hansen [6] showed the efficacy of bacitracin, polymyxin B, and streptomycin combinations *in vitro* against *E. histolytica*. One could therefore expect favorable results with other combinations, also.

Two strains of *E. histolytica* were selected for these experiments. The results demonstrated that bacitracin combined with aureomycin and chloromycetin did not produce a cumulative effect. Such a phenomenon, however, was seen in combinations of bacitracin with terramycin and even more with neomycin. Table 3 presents the results giving average values found by testing both cultures. The latter combination has been given a clinical trial, using 1,000 to 4,000 units of neomycin and

TABLE 3

Action of Combinations of Antibiotics on E. histolytica in vitro

Combination in μg. or units/ml. Medium Giving Complete Inhibition	*This Combination Is Equivalent to Per cent of Effective Doses When each Drug Is Used Separately*
Aureomycin 40† + Bacitracin 0*	100 + 0 = 100
Aureomycin 0 + Bacitracin 200	0 + 100 = 100
Aureomycin 20 + Bacitracin 100	50 + 50 = 100
Chloromycetin 110† + Bacitracin 0	100 + 0 = 100
Chloromycetin 0 + Bacitracin 200	0 + 100 = 100
Chloromycetin 55 + Bacitracin 100	50 + 50 = 100
Terramycin 12† + Bacitracin 0	100 + 0 = 100
Terramycin 0 + Bacitracin 200	0 + 100 = 100
Terramycin 9 + Bacitracin 20	75 + 10 = 85
Terramycin 6 + Bacitracin 75	50 + 37.5 = 87.5
Terramycin 3 + Bacitracin 125	25 + 62.5 = 87.5
Neomycin 75* + Bacitracin 0	100 + 0 = 100
Neomycin 0 + Bacitracin 200	0 + 100 = 100
Neomycin 50 + Bacitracin 20	66.6 + 10 = 76.6
Neomycin 25 + Bacitracin 80	33.3 + 40 = 73.3

* = in units.
† = in micrograms.

250 to 500 units of bacitracin per kilogram per day *per os* for 10 to 14 days and, if necessary, repeating this course after one week's intermission.

After 3 to 6 months' observation, 41 out of the 48 patients treated for amebiasis did not show relapses. This combination of antibiotics was therefore effective in 85.4 per cent of the cases. Forty-seven cases of infantile diarrhea, without protozoa in the stools, were also cured in 4 days using the neomycin and bacitracin combination. No difficulties were experienced during the treatment. One adult patient, however, had nausea. The antibiotics could not be detected in the blood of the patients during the course of this oral medication.

The bacterial counts in the stools are strongly reduced during this treatment. As early as four hours after the first dose of the combination of neomycin with bacitracin, the number of viable microörganisms are reduced 10^3 to 10^6 times. After 4 or 5 days, however, a slow increase in the intestinal bacterial flora takes place.

This brings up the question of continuous administration of antibiotics which reduce the number of organisms in the intestines. Physiology has been teaching us that many microbes in the intestines have specific, and for the animal organism highly important, functions, of which, perhaps, synthesis of a number of vitamins belonging to the B-complex group is best known. We have observed 7 cases of chronic ulcerative colitis which were kept for several months on antibiotics and which showed immediate improvement when the antibiotics were stopped and vigorous vitamin B-complex treatment substituted.

The danger of indiscriminate use does not allow the application of highly active antibiotics and sulfonamide drugs in projects of mass treatments of intestinal infections in which every treated individual cannot be checked closely.

The prophylactic value of many antibiotics in amebiasis has been established by using the Jones technic for testing antiamebic drugs in animals. Unfortunately, the objections raised against mass treatment with antibiotics have to be sustained also in the event of mass

prophylaxis, even if side effects are rare when the proper drugs are used.

Amebiasis in the Chicago area is now more an infection transferred from man to man, eventually with the aid of food, than a water-borne disease, as it was in the 1930's. Family and household infections are frequent. A search for subclinical and clinical cases of amebiasis is being carried out by the Enteric Service of Cook County Hospital in Chicago among the members of the family and other close contacts if a case of amebiasis is diagnosed in the hospital. It is hoped that this procedure will be helpful in the reduction of the incidence and reinfection rates. Antibiotics are well suited for the treatment of families, since the medication can be easily supervised by the family doctor or by the clinic physician.

Aside from the treatment of subclinical cases of amebiasis, the measures aimed at the extermination of this disease remain unchanged and consist of water and food sanitation, as well as of food handler control.

SUMMARY

Three forms of penicillin, streptomycin, chloromycetin, aureomycin, terramycin, neomycin, bacitracin, polymyxin D, fradicin and prodigiosin were tested alone and in combinations against *E. histolytica* strains. Combinations of neomycin with bacitracin were found active against human amebiasis. The public health implications of the role of antibiotics in the control of amebiasis have been discussed.

REFERENCES

1. Bradin, J. L., and Hansen, E. L. Indirect *in vitro* Action of Antibiotics in Comparison with Activity of Accepted Amebicides. *Am. J. Trop. Med.* 30:27–41, 1950.
2. Thompson, P. E., Dunn, M. C., Bayles, A., and Reinertson, J. W. Action of Chloromphenicol (Chloromycetin) and Other Drugs against *Endamoeba histolytica in vitro* and in Experimental Animals. *Am. J. Trop. Med.* 30:203–215, 1950.
3. Balamuth, W., and Sandza, J. G. Simple, Standardized Culture Medium for the Physiological Studies of *Endamoeba Histolytica*. *Proc. Soc. Exper. Biol. & Med.* 57:161–163, 1944.
4. Felsenfeld, O., and Young, V. M. Quantitative Method for the Determination of Amebicidal Activity of Drugs *in vitro*. *Trans. Am. Microscop. Soc.* 64: 286–288, 1945.
5. Stewart, G. T., and Jones, W. R. Pathology of an Experimental Amoebic Infection in the Rat. *Ann. Trop. Med.* 42:33–37, 1948.
6. Gould, M., and Hansen, E. L. Synergism between Bacitracin, Polymyxin B and Streptomycin H cl. *Federation Proc.* 9:276–277, 1950.
7. Shlaes, W. H. Amebiasis in the Temperate Zone. *Chicago Med. Sch. Quart.* 11:41–49, 1950.
8. Young, V. M., Felsenfeld, O., Shlaes, W. H., Yoshimura, T., and Steigman, F. Laboratory Diagnosis of Intestinal Amebiasis with the Aid of Hematoxylin Stained Slides and the Zinc Sulfate Flotation Technic. *Am. J. Digest. Dis.* In print.

Current Status of Public Health Entomology at the State Level

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AN impressive number of bacterial and parasitic diseases have been shown to be transmitted by arthropods since the historic discovery of Smith and Kilbourne (1893) that the cattle tick, *Boöphilus annulatus*, is an obligate vector of the causative agent of the protozoan disease, Texas cattle fever. Prominent among these arthropod-borne diseases which are of concern in the United States are malaria, plague, tularemia, relapsing fever, equine encephalomyelitis, yellow fever, dengue, typhus, rickettsialpox, and the thirty-odd diseases, such as typhoid and certain of the dysenteries, which may be occasionally transmitted by muscoid Diptera.

These pathogenic organisms are carried accidentally, or the arthropods may be obligate vectors within which there is at least some degree of development of the pathogen.

Insects and their relatives are also the direct cause of other pathogenic conditions. Herms (1939) places the injuries to man caused by arthropods in the following categories: entomophobia; accidental injury to sense organs by flying or crawling forms; dermatitis; myiasis; allergy and envenomization.

Arthropod venoms are introduced into or onto the body of man by means of stinging apparatus (bees, wasps, ants, scorpions, etc.), by biting or insertion of a proboscis (bedbugs, spiders, centipedes, mosquitoes, horse flies, fleas, etc.), and by contact with an irritating substance (certain millipedes, blister beetles, caterpillars with stinging hairs, etc.).

An insect must be found guilty on at least four counts before it can be completely incriminated as a vector of a specific malady. It is necessary (1) to demonstrate that under laboratory conditions it will transmit the disease; (2) to recover naturally infected insects in nature; (3) to show epidemiological correlation between the presence and abundance of the insect in question and the occurrence of human cases of the disease; (4) to demonstrate that the case rate of the disease drops significantly when efficient control measures are instituted against the insect. In this indictment the last step is obviously the most important.

Control or abatement of insects which have been shown by these criteria to be responsible for the transmission of disease organisms, or which otherwise adversely affect man's health, is an important public health problem and obviously requires the services of zoologists with specialized training in the invertebrate field.

In a discussion of the role of entomologists in public health, Olson (1946) makes the pertinent statement that the effectiveness of control measures usually is directly proportional to the knowledge we have concerning the life history, ecology, physiology, distribution, etc., of the arthropod involved.

Since the arthropod species vary greatly from state to state, and even the same species exhibit diverse actions under different climatic and geographical conditions, every state should have need of this relatively new specialist, the public health entomologist. Bradley,

Bellamy, and Bracken (1940) reported that as a result of U. S. Public Health Service promotion in 1937, malaria control units were established in Louisiana, Arkansas, Kentucky, Mississippi, Georgia, North Carolina, and South Carolina. Personnel of these units included entomologists whose duties covered *Anopheles* species and abundance surveys, biological research, and educational and control work.

However, the extent to which entomologists are being utilized at the present time at the state level has been purely a matter of conjecture. In an effort to overcome this dearth of information, questionnaires were sent to all state and territorial health departments. Excellent coöperation was received, and the 49 replies form the basis of this paper. It is assumed that the one state and one territory which did not reply employ no entomologists at this time.

As shown in Table 1, one or more state department of health entomologists devote at least 50 per cent of their time to purely entomological work in 11 states and territories. Five states employ persons with entomological degrees but who are spending less than 50 per cent of their time on entomological work. Additional activities engaged in by a small proportion of these specialists include diagnostic bacteriology, rodent control, and general sanitation, indicating that possibly the title of public health biologist would be more descriptive than that of public health entomologist. California, Florida, Georgia, Hawaii, Idaho, Illinois, Kansas, Louisiana, Massachusetts, Nebraska, North Carolina, Oklahoma, Puerto Rico, South Carolina, Texas, and Wyoming are currently utilizing 43 public health entomologists, with 49 per cent of this number in California and Florida.

TABLE 1

State and Territorial Health Department Entomologists

State or Territory	*No. of Entomologists*	*Administrative Allocation*	*Time Allocation (In Percentages)*				*Principal Coöperating State Agencies*
			Taxonomy	*Insect Control*	*Disease Transmission*	*Non-entomological*	
Alabama	None	—	—	—	—	—	—
Alaska	None	—	—	—	—	—	—
Arizona	None	—	—	—	—	—	State Entomologist
Arkansas	None	—	—	—	—	—	Univ. of Arkansas, Rice Exp. Sta.
California	13	Vector Control	10	60	30	—	Calif. Mosquito Control Assn., Univ. of California
Colorado	None	—	—	—	—	—	State Entomologist
Connecticut	None	—	—	—	—	—	Agr. Exp. Sta.
Florida	8	Sanitary Engineering	—	30	65	5	—
Georgia	4	Epidemiology Division	15	20	15	50	—
Hawaii	1	Sanitation Division	25	50	—	25	Board of Agriculture and Forestry
Idaho	1	Sanitary Engineering	10	20	10	60	Extension Service
Illinois	1	Laboratory	10	—	—	90	Natural History Survey
Indiana	None	—	—	—	—	—	Purdue Univ.
Iowa	None	—	—	—	—	—	Iowa State College

TABLE 1 (Cont.)

State or Territory	No. of Entomologists	Administrative Allocation	Time Allocation (In Percentages)				Principal Coöperating State Agencies
			Taxonomy	Insect Control	Disease Transmission	Non-entomological	
Kansas	1	Sanitary Engineering	20	70	10	—	Kansas State College, Kansas Univ.
Kentucky	None	—	—	—	—	—	—
Louisiana	2	Public Health Engineering	20	70	10	—	Tulane Univ., Louisiana State Univ.
Maine	None	—	—	—	—	—	State Entomologist
Maryland	None	—	—	—	—	—	State Entomologist
Massachusetts	1	Sanitary Engineering	—	5	—	95	Reclamation Board, Conservation Dept.
Michigan	None	—	—	—	—	—	Michigan State College
Minnesota	None	—	—	—	—	—	State Entomologist
Mississippi	None	—	—	—	—	—	—
Missouri	None	—	—	—	—	—	—
Montana	None	—	—	—	—	—	Montana State College
Nebraska	1	Laboratory	20	—	—	80	Univ. of Nebraska
Nevada	None	—					—
New Hampshire	None	—	—	—	—	—	Univ. of New Hampshire
New Jersey	None	—	—	—	—	—	Agr. Exp. Sta.
New Mexico	None	—	—	—	—	—	—
New York	None	—	—	—	—	—	State Entomologist
North Carolina	1	Sanitary Engineering	20	60	20	—	—
North Dakota	None	—	—	—	—	—	North Dakota Agricultural College
Ohio	None	—	—	—	—	—	—
Oklahoma	1	Laboratory	—	—	—	100	Oklahoma Univ.
Oregon	None	—	—	—	—	—	Oregon State College
Pennsylvania	None	—	—	—	—	—	State Dept. of Agr.
Puerto Rico	2	Vector Control	30	50	20	—	Univ. of Puerto Rico
Rhode Island	None	—	—	—	—	—	State Dept. of Agr., State Exp. Sta.
South Carolina	2	Preventable Diseases	25	35	40	—	—
South Dakota	None	—	—	—	—	—	—
Tennessee	None	—	—	—	—	—	State Entomologist
Texas	3	Laboratory	50	10	40	—	A & M College, Texas Univ.
Utah	None	—	—	—	—	—	Univ. of Utah
Vermont	None	—	—	—	—	—	—
Virginia	None	—	—	—	—	—	—
Washington	None	—	—	—	—	—	Univ. of Washington, Washington State College
West Virginia	None	—	—	—	—	—	State Entomologist, Dept. of Agr.
Wisconsin	None	—	—	—	—	—	—
Wyoming	1	Sanitary Engineering	5	40	5	50	State Entomologist

It will be noted that there is considerable variation in the administrative allocation of these entomologists, although the importance placed on insect control measures is emphasized by the fact that the majority are located in divisions or bureaus of sanitary engineering. Others are directed by administrative personnel of laboratory, epidemiology, vector control, and preventable disease divisions.

In this connection it is well to reiterate that effective control measures are based, of necessity, on a thorough knowledge of the bionomics of each species of disease vector. There is also a marked specificity exhibited among arthropods in disease-transmitting efficiency, and a thorough taxonomic concept of the insect vectors within a state is a primary prerequisite to the institution of remedial measures. Consequently, for administrative purposes the entomology section should be placed in the division or bureau offering the greatest opportunities for access to the equipment and material necessary to maintain a comprehensive program.

Due to the simplification of the questionnaire, this survey was limited to persons with entomological degrees. In a few of the state health departments without entomologists, other specialists, including engineers, sanitarians, bacteriologists, and general zoologists, do a certain amount of insect determination and control work.

In addition to the state health department entomologists, at this time there are 17 U. S. Public Health Service entomologists (Communicable Disease Center), who are assigned to the state health departments shown in Table 2. These data do not include personnel engaged in special U. S. Public Health Service research projects which may be temporarily located within a state. These projects are listed in Table 3.

A majority of the state health departments have coöperative arrangements with entomological personnel of other state agencies. Coöperating agencies include: offices of state entomologists; state college and university entomology departments, experiment stations, and extension services; state departments of agriculture; reclamation boards; conservation departments; state mosquito control associations; and one natural history survey. The public health activities of these coöperating agencies range from the occasional specific determination of insects affecting man and animals to full-time control of insect vectors as practised by the mosquito abatement districts.

In 1950 (Beadle and Rector), 20 states had mosquito abatement legislation which enabled them to establish mosquito control districts. These laws show no uniformity in the delegation of

TABLE 2

Entomologists of the U. S. Public Health Service, Communicable Disease Center, Assigned to State Health Departments

State	*Number of C.D.C. Entomologists*	*Administrative Allocation*
Alabama	1	Sanitary Engineering
Arkansas	2	Sanitary Engineering
Arizona	1 (Part Time)	Sanitation
California	1	Vector Control
Florida	2	Sanitary Engineering
Idaho	1	Engineering Division
Kentucky	1	Public Health Engineering
Mississippi	1	Sanitary Engineering
Oklahoma	1	Sanitary Engineering
South Carolina	3	Preventable Diseases
Tennessee	1	Preventable Diseases
Texas	1	Sanitary Engineering
Wyoming	1	Sanitary Engineering

TABLE 3

Special Public Health Service, Communicable Disease Center, Research Projects

Project	*Number of Entomologists*
1. Communicable Disease Center Headquarters, Entomologic Services, Atlanta, Ga.	12
2. In-training, Engineering, Technical Development, and Laboratory Services, C.D.C. Headquarters	15
3. Encephalitis investigations in coöperation with Hooper Foundation, Univ. of California, Bakersfield, Calif.	2
4. Malaria investigations field stations located one each in Georgia, Arkansas, South Carolina	5
5. Fly-polio investigations in Charleston, W. Va., and Phoenix, Ariz.	6
6. Diarrhea-dysentery investigations, Thomasville, Ga.	3
7. Eye-gnat conjunctivitis investigations, Thomasville, Ga.	1
8. Typhus investigations, Thomasville, Ga.	1
9. Federal Security Agency Regional Offices	4
10. Midwestern C.D.C. Services	6
11. River-basin development projects	4
Total	59

supervisory authority. In only 4 states are the mosquito abatement districts directly under the supervision of the state health departments, although in the remaining 16 states apparently 2 have at least some sort of coöperative arrangements—advisory, monetary, or both.

Current research projects by state department of health entomological personnel are many and varied. Representative research work includes: California—ecology of irrigated pasture and rice field mosquitoes, fly ecology, studies on insecticides and mosquito resistance; Florida—mosquito, sandfly, and dog fly studies; Georgia—tick control, vectors, and reservoirs of eastern equine encephalomyelitis and of the fly problem in pit privies; Hawaii—biological control of *Aedes albopictus;* and Texas—arthropod reservoirs of the Q fever rickettsiae.

SUMMARY

A poll of the state and territorial departments of health was conducted in order to ascertain the extent to which public health entomologists are being utilized at the state level. During the latter part of 1950, 11 states and territories had 43 of these specialists, who were devoting at least 50 per cent of their time to purely entomological work. A majority of the remaining health departments had coöperative arrangements with other state agencies, such as state colleges and universities, from which entomological assistance could be obtained as needed.

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BIBLIOGRAPHY

1. Beadle, L. D., and Rector, N. H. A Review of Existing Insect Abatement Legislation. *Pub. Health Bull.* 9, 1:1–58, 1950.
2. Bradley, G. H., Bellamy, R. E., and Bracken, T. T. The Work of State Board of Health Entomologists on Malaria Control. *South M. J.* 33, 8:892–894, 1940.
3. Herms, W. B. *Medical Entomology (3rd Ed.).* New York: Macmillan, 1939.
4. Olson, T. A. Place of the Entomologist in Public Health. *A.J.P.H.* 36, 9:1031–1034, 1946.
5. Smith, T., and Kilbourne, F. L. Investigations into the Nature, Causation and Prevention of Texas or Southern Cattle Fever. *Bull. No. 1,* Bureau of Animal Industry, U. S. Dept. Agr., 1893. 301 pp.

Putting Absence Records to Use*

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MAN power shortages during the last war encouraged the majority of industrial plants to keep attendance records and to study the reasons why people were sometimes forced to stay away from work. Most of these plants had probably not been concerned with absenteeism before Pearl Harbor and had never before kept such personnel records. Many of them, however, have continued to keep them since the war.

This paper is intended to show some of the uses to which absenteeism records can be put. Certain findings through the years of one company will be presented. Some of the unanswered questions they raise will be pointed out. It should be remembered, however, that this material comes from the experience of only one company and may not apply to other organizations whose manufacturing processes, management policies, supervisors' training, and personnel practices are different.

WHY KEEP ABSENCE RECORDS?

To keep accurate absence records in a plant of several hundred people is time consuming, and to keep them in a company made up of a score or more of such plants is a formidable task. The procedures to be described began to evolve back in 1934, when information on major illnesses (those lasting more than a week) for the whole company was first gathered. Gradually, one plant and then another extended its procedures and interest to include all nonindustrial sickness and injury cases, regardless of whether they lasted one day or longer. By 1940 it became evident that short illnesses were sometimes missed, and it seemed worth while to keep track of every absence, even those for personal, nonmedical reasons, that lasted a day or longer (except vacations and regular days off).

From the first, emphasis was placed on learning how absenteeism varied among groups of people:

- What department has more than its share—and why?
- What types of illnesses are most prevalent—and can the plant health program help reduce them?
- Why do two groups, each doing the same work, have different absence rates?

Absence records should never deteriorate into mere paper work and dry statistics. So much clerical effort goes into them that not to use them, not to do more than grind out a "per cent absenteeism" figure every day or week, is sheer waste. When absence data are used as a tool—as a magnifying glass to show up behavior features of a group of people that would otherwise not be seen—the hours spent accumulating them are worth while.

They can be used as a telltale signal to spot poor environmental working conditions: the chronic effects of dusts, gases, heat, inadequate ventilation, and the like. They can be used to spot good and poor supervisors—it is strange how a foreman can unconsciously affect medi-

* Presented before a Joint Session of the Industrial Hygiene and Statistics Sections of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., October 31, 1950.

cal absences. They can reflect poor management practices, poor scheduling, or a feeling of job insecurity.

Of even more importance to the plant, however, than this study of group data are these records when used in dealing with individuals. A person's absence experience, for example, is one item always considered by the supervisor when he fills out that person's merit rating or progress report. Absence experience during prior employment is something to be considered if the person is up for rehire. Repeat sick absences are the nurse's cue to see whether constructive health measures will be helpful. Absences sometimes show indirectly that a person does not like his job, which is the tip-off that here is a chance to adjust the man better to his boss, or the reverse. A report today showing everyone who was off yesterday is a great aid to a plant that carries on a good personnel program: the nurse can tell when to make home visits, she knows when to remind a person that he is eligible for group insurance benefits, the department head can follow up with the ill person or his family, the doctor can check to see that he has really recovered before he goes back to work. When a plant has a counseling program, the individual absence record is almost a must.

HOW ARE THE RECORDS KEPT?

The mechanics of keeping absence records are these: Each day the foreman sends to the personnel department a list giving the names of his employees who were off the preceding shift—with the reasons for the absences, if he knows them. At the same time he makes an entry on each person's individual absence record. At the end of the year these sheets go in a permanent personal history folder, kept in the personnel department.

The daily list of absentees is used by the personnel department in the ways already mentioned. When these lists have served their purpose they are thrown away.

If the absence is due to an illness or an injury suffered by the employee, a medical absence slip is filled out when he returns to work.* These slips are tabulated at the plant monthly and are used for any other purpose of a statistical nature. Eventually they are mailed to the general office, where company-wide studies of illness are carried on. The slip is arranged so that the facts can be transferred to tabulating cards if desired. The material in this report was gathered from these medical absence slips.

GENERAL FINDINGS

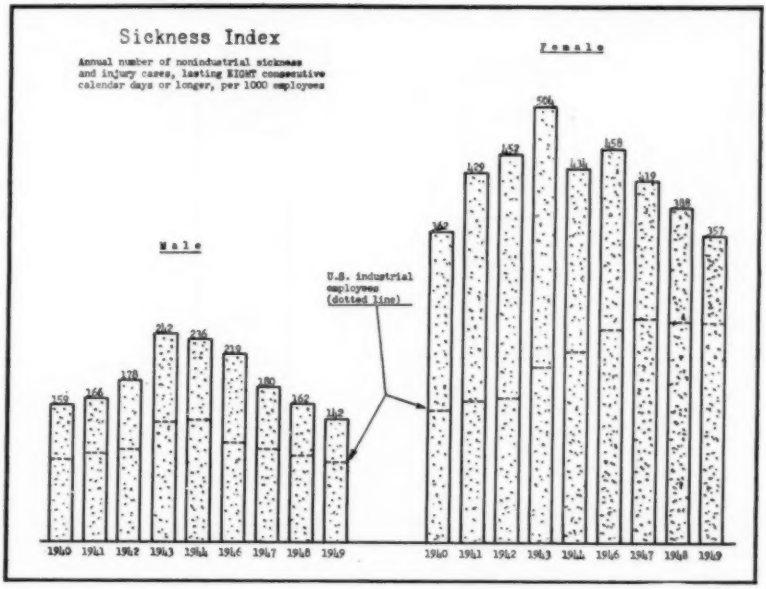
The first use of absence records is in the daily handling of individual cases within the plant. For present purposes, however, perhaps some of the group findings will be of more interest. We are considering here only personal medical, not nonmedical absences, and not those due to sickness in the family.

It is well known that disabling illness occurs oftener among women industrial workers than among men—three times as often in our organization. So all studies must be broken down according to sex. It is not so well recognized, however, that an overall or "company" rate, especially when that company is made up of several separate plants, has no great value by itself. Value comes only when one plant is compared with another, when one department is compared with another within the same plant and with similar departments in other plants, when one shift in a department is compared with another, when long-service employees in a department are compared with newcomers, and so on.

To illustrate, Figure 1 exhibits the

* Copies of the forms can be obtained by applying to the author.

FIGURE 1



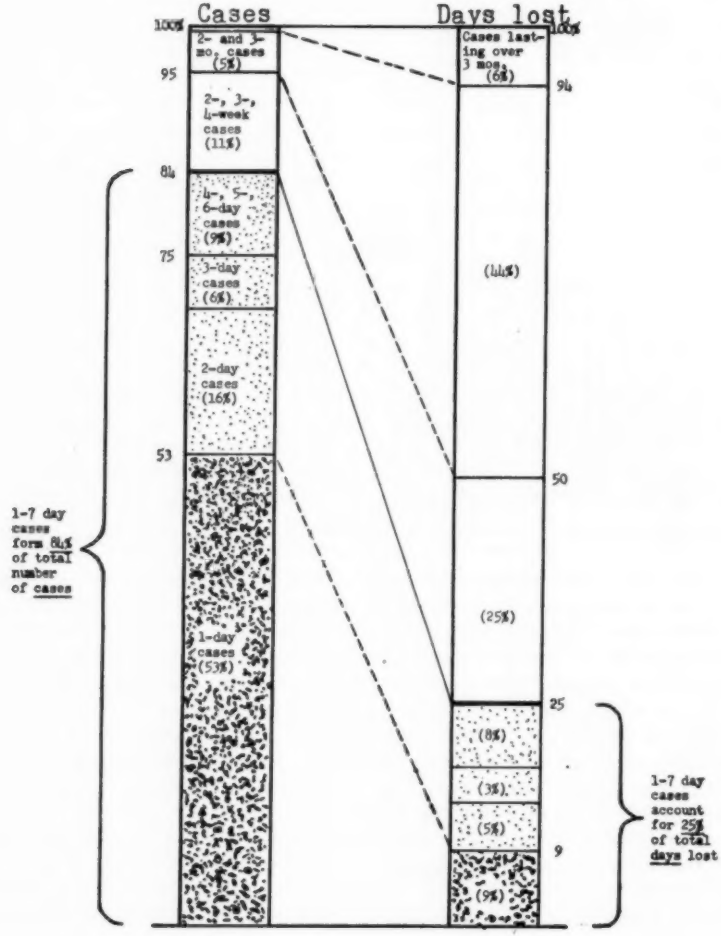
company rate, male and female separately, for the nine years shown. It shows the 1943–1946 wartime peak, experienced generally in industry elsewhere. It shows also a dotted line representing the figures reported by Dr. Gafafer for industrial employees generally, and there is no ready explanation of why the company rate is different from that of the balance of the country. But the very nature of these "average" rates obliterates the internal group differences—which are the points of interest.

Figure 1 was based on major cases—those that lasted 8 consecutive calendar days or longer. When all disabling sickness cases are included, the volume of record keeping steps up. Figure 2, based on material from one plant (female employees only), shows that over half of all the sick absence cases lasted no more than one day. A total of 84 per cent of the cases lasted a week or less. It is true that these week-or-less cases contributed only a quarter of all the days lost due to sickness, but the interference with the smooth running of a department from these short absences is great. Actually, a dozen 2 day cases probably plague a supervisor more than a single 24 day case. These short-term cases are also often the barometer of dissatisfaction with the job, and so personnel-wise they are important when tied in with the individual.

Figure 3 shows our picture for one year only, 1949, based on all medical absences, that is, cases lasting one day or longer. The 15 plants charted employed over 17,000 people, and the number of absence cases was over 21,000. Notice the wide spread from the high to the low plant—a ratio of 10:1 for the women. Immediately the question "why" is raised. Eleven of these plants are engaged in identically the same type of manufacturing, with similar departments in each, with the same type of management, rate structure, incentive systems, and personnel

FIGURE 2

Percentage of short- and long-term cases



programs (including medical and group insurance).

One plant was taken for illustration (Figure 4), and the female rates for the four departments employing women were calculated. Again, notice the wide difference between the department groups, even though they are all in the same plant.

This presents a challenge to look further, to see why these variations occur.

For one investigation, we took the girls in one plant who were hired in 1947 and separated them into two groups: (1) those hired in 1947 whose employment was terminated for any reason during that same year or the next year, and (2) those also hired in 1947 but

FIGURE 3

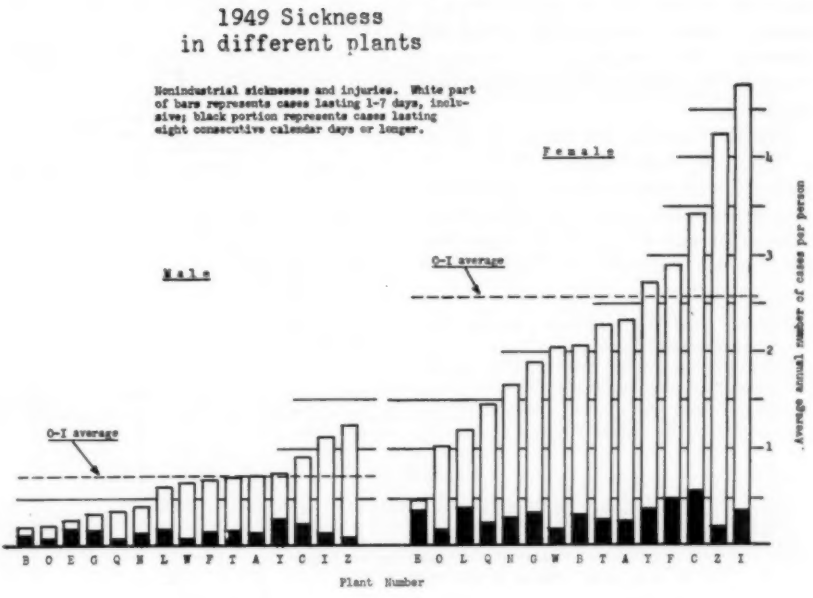

1949 Sickness
in different plants
Nonindustrial sicknesses and injuries. White part of bars represents cases lasting 1-7 days, inclusive; black portion represents cases lasting eight consecutive calendar days or longer.
Female
Male
O-I average
O-I average
Average annual number of cases per person
0
1
2
3
4
B O E G Q N L W F T A Y C I Z
E O L Q N G W B T A Y F C Z I
Plant Number

TABLE 1

1947 Absence Experience of Female Employees in Plant C.

Rates	*Absences During 1947*	
	Persons Hired During 1947 and Terminated in 1947 or 1948	*Persons Hired During 1947 and Still on Payroll at End of 1949*
Average Annual No. of Cases per Employee	6.4	5.5
Average No. of Calendar Days per Case	8.0	3.7
Average Annual No. of Days Lost per Employee	51	20
Number		
Individuals	277	45
Man-years exposure	121	29
Cases	769	161
Days Lost	6,118	593

who were still on the payroll all of 1948 and all of 1949. Table 1 gives the absence experience of these groups.

While the case rate is about the same for each group (6.4 and 5.5 cases per person per year), the average length of case was more than double in the first group than in the second, making the average number of days lost from non-industrial illness and injury per person, per year, 51 in the first group and only 20 in the second group. There was something about the "floaters" that gave them, immediately after they got their jobs, a much higher days lost rate (2½ times, on the average) than the "survivors." We do not know yet what caused this, and admittedly the groups

studied were small in number. But if, somehow, at the time of employment, a person's future absenteeism could be forecast, the employment manager would have a most useful aid in selecting applicants.

Length of service has been said to be a factor in absenteeism. Often it is accepted that long-term employees have less absenteeism than the newcomers. This point was examined by separating the female employees of Plant C into four groups:

1. Those hired and terminated during 1949 ("newcomers")
2. Those hired during 1948 and still on the payroll at the end of 1949
3. Those hired during 1947 and still on the payroll at the end of 1949
4. Those hired any time prior to 1947 and still on the payroll at the end of 1949 ("oldtimers")

These groups had the following absence rates during 1949:

Group (Length of Service)	*Average Annual No. of Absences During 1949*		
	Number of Employes	*Days per Person*	*Cases per Person*
1. "Newcomers" (no service before 1949)	39*	15	2.7
2. Less than 12 months' service before 1949	49	17	2.9
3. 12 to 23 months' service before 1949	74	13	3.3
4. "Oldtimers" (hired 2 years or more before 1949	279	26	3.9

* There were 142 individuals hired and terminated during 1949 whose total length of service amounted to 39 man-years.

FIGURE 4

Sick absenteeism by departments

Nonindustrial sickness and injury cases lasting 1 calendar day or longer, plant 3, 1949—female only

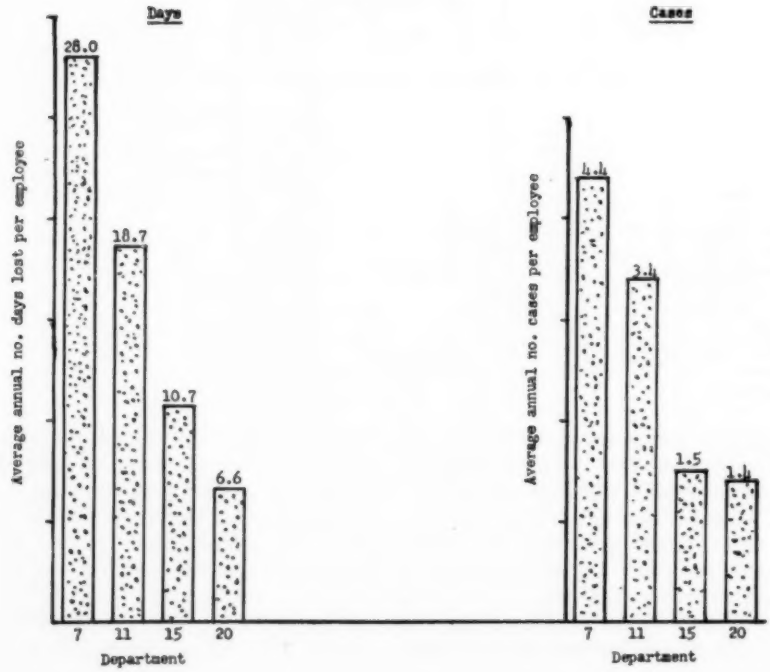


FIGURE 5

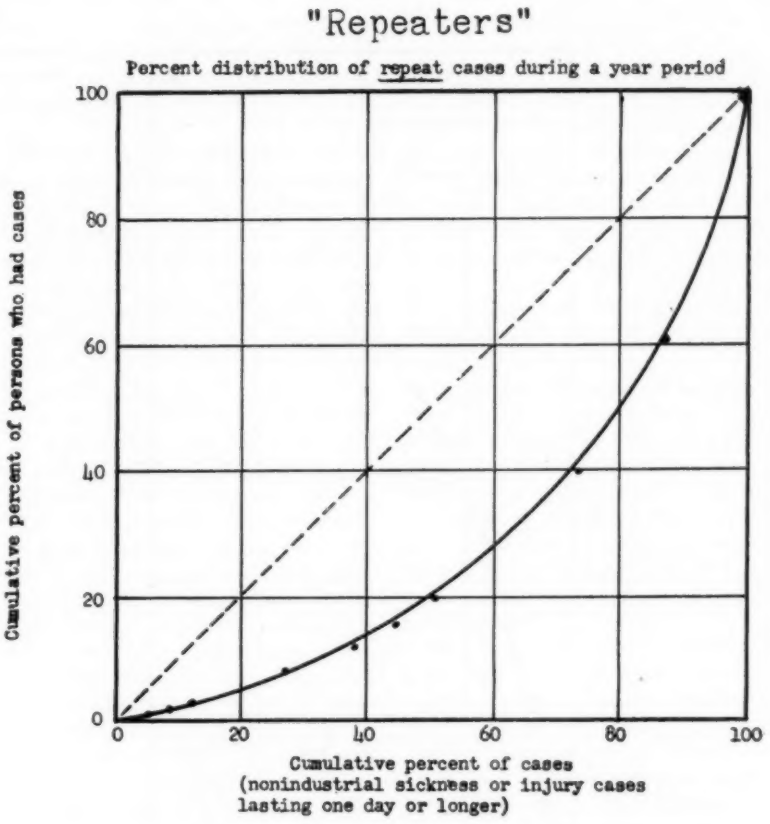


TABLE 2

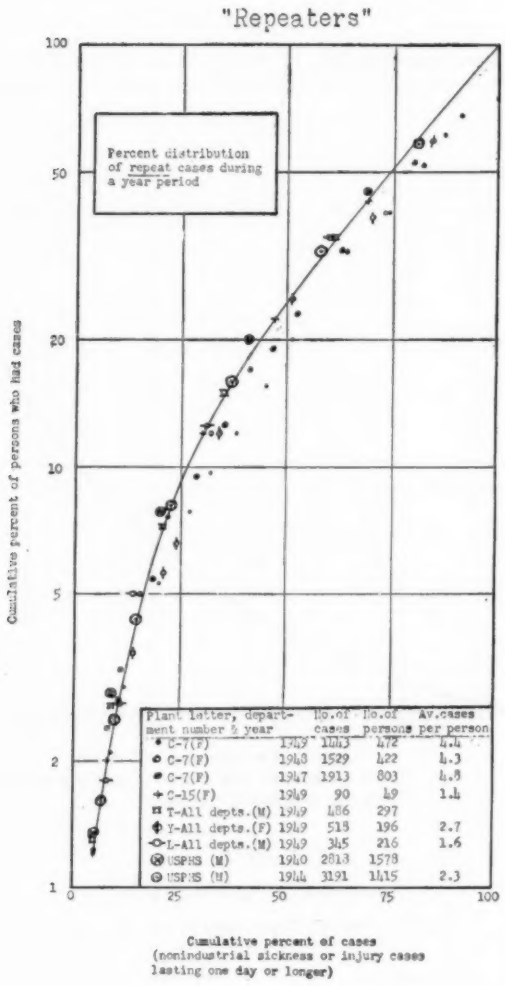
Arrangement of "Repeater" Data

(Sample: Plant C, Department 7, Female, 1948)

No. of Attacks per Person (Cases Disabling 1 Day or Longer)	*Number of—*		*Cumulative Number of—*		*Cumulative Per cent*	
	Persons	*Cases*	*Persons*	*Cases*	*Persons*	*Cases*
1	136	136	422	1,529	100.0	100.0
2	68	136	286	1,393	67.8	91.1
3	48	144	218	1,257	51.7	82.1
4	33	128	170	1,113	40.3	72.8
5	39	195	137	985	32.5	64.4
6	27	162	98	790	23.2	51.7
7	20	140	71	628	16.9	41.0
8	19	152	51	488	12.1	31.9
9	11	99	32	336	7.6	22.0
10 or more	21	237	21	237	5.0	15.5

Average No. of Cases per Person During Year: 3.6

FIGURE 6


"Repeaters"
Percent distribution of repeat cases during a year period
Cumulative percent of persons who had cases
Cumulative percent of cases (noncindustrial sickness or injury cases lasting one day or longer)
100
50
20
10
5
2
1
0
25
50
75
100
Plant letter, department number & year | No. of cases | No. of persons | Av. cases per person
C-7(F) 1949 1083 472 4.4
C-7(F) 1948 1529 422 4.3
C-7(F) 1947 1913 803 4.8
C-15(F) 1949 90 49 1.4
T-All depts.(M) 1949 486 297
Y-All depts.(F) 1949 518 196 2.7
L-All depts.(M) 1949 345 216 1.6
USPHS (M) 1940 2813 1578
USPHS (M) 1944 3191 1415 2.3

It is interesting that the "newcomers" had the lowest number of cases per person, and the "oldtimers" the highest. The latter also lost the greatest number of days per person of any of the four length-of-service groups. No generalization can be made from this small-scale investigation, but the trend is interesting. It is also interesting that the trend is perhaps the reverse of what might be expected after looking at Figure 5.

Thus far we have stressed the variations between different groups. A study of persons who have repeat cases during a given year is especially interesting because a basic similarity in performance comes to light. Table 2 shows how the data were arranged: the two right hand

columns give cumulative per cents of persons and cases. In this example, about 25 per cent of the persons experienced about half the disabling illness and injury cases and about 10 per cent of the people had a quarter of all the cases.

The immediate importance of this is that if the plant health service aims its shots at this "25 per cent" group, or even at only the "10 per cent" group, instead of scattering them like buckshot over the whole plant population, there is a better possibility of improving the health experience of those who really need it.

Figure 5 shows the "repeater" data plotted on ordinary arithmetic coördinates. It is clear that the curve falls far from the 45 degree line.

Figure 6 shows more such material plotted with logarithmic coördinates. The upper right part of the curve becomes straightened. Of greater interest, though, is the finding that when data for several widely different groups are plotted, the points follow the same general pattern. No matter whether the figures are for male or female, a single department in a plant, the whole plant, or a plant in a completely different part of the country, the points fall close to each other. Even data accumulated by Dr. Gafafer for a public utility whose cases occurred in 1944–1948 seem to follow the same pattern. The volume of cases that occurs among the group seems to matter little, for some of the points in Figure 6 are for a group that had only 1.4 cases per person per year, while others are for a group that had 4.8 cases per person per year.

This suggests the possibility that there is a basic pattern of scattering of absences—a similar pattern for groups that are otherwise different in sex, occupation, and geographical location.

Perhaps some absenteeism is not only inevitable but even desirable. Perhaps in the urge to provide good plant medical services, in part to reduce sick absenteeism, management influences that also significantly affect absenteeism have been overlooked.

These questions certainly suggest further study. For instance, is the repeater pattern the same among long-term ("successful") employees as among short-term employees? Is it the same for industrial injuries? Why is it that when there are so many variations in other sides of the absenteeism picture, a similar repeater pattern seems common to all groups?

Many questions need answering. We hope that some of them have been pointed out here. And we hope also to have demonstrated that a plant which keeps only "percentage absenteeism" figures is missing a tool most useful in both day-to-day personnel relations and in long-range personnel research.

ACKNOWLEDGMENT: The author gratefully acknowledges assistance of Elizabeth Robinson, R.N., Maude Ley, and other members of the Division in preparing the data for this paper.

Vocational Rehabilitation and Public Health

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FOR 31 years, vocational rehabilitation has been a vital and growing American social program with important public health implications. Despite these facts, it still plays a comparatively minor role in modern American public health practice.

A review of the literature from January, 1942, through September, 1950, reveals that only five articles on vocational rehabilitation were published in public health journals with extensive national circulations.[1-5] Three of these dealt with the relationships between vocational rehabilitation and specialized public health programs. Other journals, whose readers are usually limited to a subspeciality of public health or to a particular geographic area, occasionally publish an article about vocational rehabilitation, again usually limited in scope. In addition, papers on industrial hygiene, medical care, and chronic diseases sometimes mention rehabilitation, often in a rather casual way.

In so far as the schools of public health are concerned, the picture is somewhat brighter. Correspondence with the deans of the approved schools reveals that there are no courses in vocational rehabilitation *per se*. However, letters from seven schools in the United States have indicated that in each case, special attention is given to the subject. There seems to be a general tendency to integrate rehabilitation concepts in a number of courses, including public health administration, tuberculosis control, industrial hygiene, and medical care administration. In some schools, visiting lecturers are utilized to give the students a factual basis for later discussion. The general situation is a marked improvement over that of even a few years ago.

Similar progress has not yet been manifested in actual public health practice. Many health departments at all governmental levels, as well as many voluntary health agencies, have largely ignored the problem. There are, however, certain outstanding exceptions. On the national level, the U. S. Public Health Service has assigned medical consultants to the Federal Office of Vocational Rehabilitation, which is also a division of the Federal Security Agency. In South Carolina, Oregon, and Washington, local health officers act as medical consultants to the state vocational rehabilitation agencies. The Washington State Health Department is particularly enthusiastic about such an arrangement. In Maryland, a state health department staff member acts as medical consultant to the Division of Vocational Rehabilitation, on a part-time basis. An example of coöperation in both the voluntary and official health fields can be seen in California, where the California Tuberculosis and Health Association, the State

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Department of Public Health, and the Bureau of Vocational Rehabilitation have spent several years exploring the problems of rehabilitating the tuberculous.

The American Public Health Association has done its part in recognizing the role that vocational rehabilitation can play in public health by establishing a Committee on Rehabilitation in its Medical Care Section.

Despite these and certain other signs of progress, the situation today is basically but little improved over that of four years ago, when the following statement appeared in a paper written by Dr. Mountin:[6]

> The federal-state program of vocational rehabilitation represents another expanding field in which medical administration plays an important part. Today this work is under the supervision of the state departments of education in nearly every state, with little, if any, participation or assistance by state departments of health. Such separation in health responsibilities again operates to the detriment of both programs.

This neglect and lack of coördination is certainly not to be exclusively attributed to public health administrators. The position of state vocational rehabilitation agencies under boards of vocational education has automatically tended to separate them from public health. Usually, the administrators of these programs have educational or vocational rather than medical or public health backgrounds, and therefore they tend to be unaware of the public health aspects of rehabilitation. Yet regardless of where the faults lie, better coöperation between public health and rehabilitation administrators will inevitably improve the effectiveness of those aspects of both programs which are interrelated.

FEDERAL-STATE VOCATIONAL REHABILITATION PROGRAM

Vocational rehabilitation may be defined as the restoration of the handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which they are capable.

Under the Federal Vocational Rehabilitation Act as amended in 1943, there are a number of ways in which the state and territorial bureaus of vocational rehabilitation, with the financial and technical aid of the federal government, may serve physically and mentally handicapped adults.

1. *Medical diagnosis* accomplishes the threefold purpose of establishing the presence of a disability, uncovering other disease, and determining work capacity.
2. *Medical treatment*, when indicated, is designed to increase the employability of a handicapped person with a chronic static disease or defect. Under the name of physical restoration, this treatment may include any aspect of medical, surgical, psychiatric and dental therapy, including the auxiliary fields of nursing, physical and occupational therapy, prosthetic appliances, hospitalization, and convalescent home care.
3. *Counseling* helps to guide the disabled person into a suitable occupation, and to assist him in overcoming the psychological problems which so often accompany chronic handicaps.
4. *Psychometry* helps determine intellectual capacity, emotional stability, and vocational aptitudes.
5. *Training* in almost any trade or profession aids the handicapped person to learn a vocation within the limits of his physical and mental capacities.
6. *Maintenance and transportation grants* assist the needy client to obtain other essential services.
7. *Placement* offers the disabled person a chance to become self-supporting in an occupation for which the rehabilitation process has fitted him. Good placement practice implies careful follow-up until the client has become a useful and self-sustaining citizen.

OTHER REHABILITATION PROGRAMS

In addition to the federal-state vocational rehabilitation program, there are many other agencies, both public and private, operating rehabilitation programs throughout the United States. The comparatively few public programs are usually administered by Workmen's Compensation agencies, as exemplified

by the rehabilitation centers operating in Rhode Island and Washington. Private agencies vary, from those that are primarily vocational schools for handicapped people to those that are basically centers for intensive medical treatment. Although the scope and size of these programs varies tremendously, some of them are doing excellent work, and a few have pioneered and shown the way to government agencies. Some of the outstanding private rehabilitation programs are being carried out by the Institute for the Crippled and Disabled in New York City, the Cleveland Rehabilitation Center, and the Rehabilitation Center of San Francisco. A few small programs are sponsored by disability insurance companies which have seen the economic values of rehabilitation. Probably the best known is the program of the Liberty Mutual Insurance Company of Boston. It must also be remembered that much rehabilitation work is being performed in hospitals, clinics, and physicians' offices.

Suffice it to say that there are numerous other public and private agencies carrying out rehabilitation programs which differ enormously in quality and in coördination with the official federal-state program.

RELATIONSHIPS BETWEEN VOCATIONAL REHABILITATION AND PUBLIC HEALTH

1. *Preventive Medicine*—At present, vocational rehabilitation programs in the various states and territories furnish medical examinations to approximately 100,000 adults each year. The hidden disease uncovered by this large and continually increasing number of examinations is probably rehabilitation's most important contribution to the preventive medical program of the nation. On the other hand, proper practice of preventive medicine by public health agencies will aid rehabilitation by markedly reducing the number of disabled people. A great deal, such as the decrease in blindness by prophylaxis of *ophthalmia neonatorum*, has already been accomplished in the domain of communicable disease control. Little of practical use has yet been done in the control of other disabling communicable diseases, such as rheumatic fever and poliomyelitis. Still less has been achieved in such potentially fruitful fields of endeavor as chronic disease control, mental hygiene, and accident prevention.

2. *Medical Care*—Both public health and vocational rehabilitation agencies provide a substantial amount of medical care to disabled people. Public health programs operate primarily in the field of communicable diseases, while vocational rehabilitation agencies work mainly with the chronic, noncommunicable diseases and defects, so that, even recognizing some overlapping of services, the two agencies tend to supplement each other. Aside from the tangible benefits of the preventive, diagnostic, and curative services, each type of agency has gained experience in medical care administration, much of which can be shared with mutual benefit.

3. *Medical Consultation*—In the past, most physicians in the rehabilitation field have entered it because of interest in a clinical specialty, such as orthopedic surgery or physical medicine. These highly trained clinicians are unquestionably essential to the success of the technical phase of rehabilitation. However, overall medical consultation related to a well balanced rehabilitation program should probably be furnished by public health trained physicians, with experience in administration rather than in a particular clinical specialty.

4. *Statistics*—Over the years, both public health and vocational rehabilitation agencies have collected voluminous statistical data. With careful analysis by trained personnel, much of this material could be of great benefit to both programs. The rehabilitation statistics should be especially useful to the rapidly

developing field of chronic disease control. At the same time, the morbidity statistics now being collected by a number of state health departments could help show rehabilitation agencies where to apply their maximum efforts.

5. *Case Referral*—As the result of routine medical examinations, rehabilitation counselors have many opportunities to direct clients to public health agencies, particularly those people who need care for communicable diseases and those eligible for crippled children's services. The other side of the picture may be even more important. Local health department personnel, especially public health nurses, have unparalleled opportunities for getting into the community and finding many otherwise undiscoverable chronically handicapped persons who can be helped by rehabilitation agencies.

PRACTICAL COÖRDINATION OF VOCATIONAL REHABILITATION AND PUBLIC HEALTH PROGRAMS

1. *Education*—Schools of public health can include courses on vocational rehabilitation as electives, particularly in those curricula intended for the training of public health administrators and nurses. In the field continuous, jointly organized inservice training of rehabilitation and public health workers by supervisory personnel in both agencies is highly desirable and extremely practical.

2. *Administrative Relationships*—Rehabilitation and public health agencies will profit by closer coöperation, both by governmental organizations at all levels and by voluntary groups. This implies that the administrative personnel of all the agencies involved should jointly plan those parts of their programs which bear closely upon one another.

3. *Facilities*—Substantial economies in money and personnel can be obtained by joint use of public health and rehabilitation facilities. The clinics and hospitals frequently operated by local health departments can be used for medical examinations of rehabilitation clients, especially in rural communities, where other medical facilities may not be too well developed. Laboratory and x-ray facilities operated by health departments can be extensively used by rehabilitation agencies. Rehabilitation centers offering the full range of services offered by the rehabilitation program as described in the foregoing can be operated jointly by health departments, bureaus of vocational rehabilitation, and such other community agencies as industrial accident commissions. Health centers can include rehabilitation services as well as the preventive measures usually thought of in this connection.

4. *Statistics*—Joint planning in the gathering and analysis of statistical data should be extremely useful and can prevent much duplication in the employment of statisticians and the use of expensive tabulating apparatus.

5. *Case Reporting*—Health departments can routinely report handicapped adults coming to their notice to vocational rehabilitation agencies. At the same time, rehabilitation workers can report crippled children and suspected communicable disease patients to the proper health jurisdictions.

6. *Public Relations*—In their many contacts with people in all walks of life and most particularly with physicians, public health personnel can do much to build up good relations for vocational rehabilitation programs. Health educators can help rehabilitation agencies learn the techniques of community education and organization. At the same time, the numerous public contacts of rehabilitation workers, particularly with small industry and business, may help give public health an entree into this group, which is so important in the growing field of industrial health. Representation of rehabilitation and public

health agencies on community health councils should help the public relations of both groups.

CONCLUSION

In recent years, vocational rehabilitation and public health groups have been widely expanding both their ideas and the scope of their operations. Although autonomous operation is probably still desirable at this stage of progress, it may be wise to start thinking of vocational rehabilitation as part of the broader concept of public health which is prevalent today. It may then be easier to realize that both programs have the optimum health of the public as an ultimate objective, using the word *health* as defined in the Constitution of the World Health Organization as "a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity."

Closer relationships between vocational rehabilitation and public health will not only help the internal growth of both programs but will aid them in the eventual attainment of the optimum health of the people, which is at once their common goal and constant inspiration.

REFERENCES

1. Clark, Dean A. Industrial Hygiene and the Expanded Federal-State Vocational Rehabilitation Program. *A.J.P.H.* 35, 5:504–508 (May), 1945.
2. Shortley, M. J. Public Health Nursing and Vocational Rehabilitation. *Pub. Health Nursing* 37:180–182 (April), 1945.
3. Amato, David. The Relationship of Vocational Rehabilitation to Industrial Hygiene. *A.J.P.H.* 32, 1:28–32 (Jan.), 1942.
4. Reedy, Corbett. Vocational Rehabilitation. *A.J.P.H.* 40, 8:966–968 (Aug.), 1950.
5. Sensenich, Helene. Team Work in Rehabilitation. *A.J.P.H.* 40, 8:969–972 (Aug.), 1950.
6. Mountin, Joseph W. Participation by State and Local Health Departments in Current Medical Care Programs. *A.J.P.H.* 36, 12:1387–1393 (Dec.), 1946.

Health Personnel To Be Safe Drivers

In Maryland both state and county health departments have recently given standard driving tests to all their personnel who drive state cars. In July and August about 230 persons throughout the state had a three part test—a written test of traffic and driving knowledge, a practical driving test, and a battery of psychophysical tests that measure performance on standard testing devices. Carried out with the cooperation of the AAA Automobile Club of Maryland, results of the test are sent to the respective county health officer, bureau, or division chief to whom the driver is responsible, and to the bureau of management. It is reported that "the tests have been well received with drivers showing considerable interest in discovering their own weaknesses and the possible causes of future accidents."

Integrating Public Health and Commercial Rodent Control*

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THE dictionary definition of *integrate* is, "to bring together parts into a whole." It is within this context that the title of this paper was chosen—to indicate that a complete community rodent control program requires the bringing together of the parts which the public health agencies and the commercial operators have to play in it.

In the relatively few places where this integration is practised, it has achieved notable success in effective rodent control. The mystery is why this integration has not been achieved in every municipality in the country. Having served as both a public health officer and a commercial pest control technician, the author undertook to find some answers to this problem.

Prepared questionnaires, of the multiple choice type, were sent to a number of selected health departments and pest control operators. The unusually high percentage of returns, over 50 per cent, and the freely offered comments given in addition to the requested information indicate deep interest and concern for this problem. Because the samples were too few in number, no statistical analysis will be attempted; however, the answers and comments expressed agree so closely as to indicate a definite trend in the thinking.

HEALTH DEPARTMENT VIEWS

Where health department personnel were critical of pest control operators, the major complaint was that PCO's do not undertake ratproofing work. One charged that "PCO's do only temporary rat control such as poisoning and trapping, and are not interested in a good job of ratproofing. . . ." Another stated that "a few PCO's will try to sell their clients ratproofing, but on the whole they are afraid that this will run them out of business," or, "We find it very difficult for the PCO to accept the idea of preventive rat control rather than corrective rat control." It was claimed that PCO's do not offer a "complete service designed to provide the public with advice as to preventing entry of rodents, pointing out sanitary deficiencies and environmental control, etc." In other words, it was the health department's opinion that PCO's should have a more complete package to sell to business establishments and residences which would insure effective results.

The second most frequent criticism involved the competency of pest control operators. Several of the health departments considered the PCO's very competent; by far the greatest number thought they were competent; and a few were marked "incompetent." But this rating was applied to all PCO's lumped together for any one city. Comments volunteered by health department officials indicated that there were one or more very competent PCO's in each city,

* Presented before a Joint Session of the Inter-American Association of Sanitary Engineering, and the Engineering and Laboratory Sections of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 3, 1950.

but that there were also a number of incompetent operators who tended to drag the industry down in the estimation of the public and the health department.

The degree of liaison or coöperation existing between health departments and PCO's varied directly with the regard of the health department for the competency of the PCO's. Generally, health departments expect PCO's to be highly competent rather than merely adequate, sometimes requiring even higher standards than health departments set for their own sanitarians. Criticism in this regard was that PCO's should be better trained, should exercise greater care in setting out dangerous poisons, especially in food and drink establishments, and should remove dead rodents from hard-to-get-at places. Also, where PCO's undertook ratproofing, the quality of their work was deemed unsatisfactory. Recognition was given to the fact that PCO's are constantly improving in the quality of their work. Most of the health departments indicated that a considerable amount of coöperation existed with competent PCO's.

On the "credit" side of the ledger, every health department stated that it felt commercial pest control operators could perform a useful and effective environmental sanitation function in their rodent control activities. In some cities, the PCO's are an integral part of the environmental sanitation services. For example, New York City has a Rodent Control Coordinator, whose function it is to coördinate the control work of PCO's with the inspectional activities of various city departments. The major responsibility for rat control rests with the PCO. Less than a year old, this program promises to be not only significantly successful locally, but will also serve, it is hoped, as a model for similar programs throughout the country.

The St. Louis, Mo., program began as a competitive one between city crews and PCO's. The use of city crews has been discontinued and the work given over to PCO's. The city now makes the original inspection and orders the rat stoppage work. In Indianapolis, Ind., the city does the emphasizing of "good housekeeping" and the PCO's do the rodent control. In Memphis, Tenn., the original program of ratproofing and eradication was done by the city from 1942 to 1948, and the health department reports that "since 1948 we have depended upon the PCO's to control rats in business establishments." The city conducts a ratproofing maintenance inspection program. In Albany, N. Y., the city investigates complaints of rodent infestation and recommends PCO's for the eradication work.

In Kansas City, Mo., rat control and sanitation programs are carried out by organized PCO's. The city health department makes premise surveys and forwards results to the owner, who is compelled to act within a specified time to correct the condition through contract with a PCO. "There is 100 per cent coöperation with the PCO's and the results have been gratifying."

Similar programs are being conducted in Cleveland, Ohio, and in Detroit, Mich. In Denver, Colo., the extermination of rats in any commercial building is done by the occupant, using licensed PCO's. The health department there commented, "Our relations with the PCO's have been very satisfactory." The Little Rock, Ark., Health Department is acting only as a law enforcement and inspection agency, with the work done by PCO's. In San Diego, Calif., ratproofing and extermination on private property are done by PCO's. The health department conducts inspections and notifies the owner, who must correct the condition according to a city ordinance.

The same situation prevails in Milwaukee, Wis., where the comment was elicited that "PCO's deserve considerable

credit for control, inasmuch as they generally do a satisfactory job of extermination, and hence have promoted requests for their services. Most PCO's also appreciate the necessity of prevention and advise and guide their clients on stoppage."

In Los Angeles, Calif., the health department has contributed to the *PCO Journal,* has appeared on regional programs of PCO s and has organized sanitation institutes in consultation with PCO's. In these institutes, operators and employees are familiarized with local ordinances and health department requirements, and are thought to be "sanitation salesmen." A representative of the PCO industry serves on the Food Sanitation Advisory Board and is chairman of the Subcommittee on Pest Control in the Food Industry.

PCO VIEWS

The general attitude of the pest control industry regarding urban rat stoppage programs is that there cannot be any extensive commercial pest control operational activities where city crews are available to do the work. Where the health department is the inspecting, contracting and approving agency, there can be no competition. This is especially true in some instances where it has taken as long as six months to secure inspection and approval of PCO jobs, and where items were required that were not included in similar health department jobs.

Another source of difficulty to the PCO industry is that health department crews perform not only rat stoppage work, but also enter into contracts with various commercial establishments for regular maintenance and pest control service, including service on rats, mice, roaches, ants, etc. As Eldredge [1] has so well put it, "There is something very wrong with this picture. If an individual citizen has faulty plumbing or an overflowed cesspool, it would be a shock to have a city health department volunteer to make the repairs. . . . A more normal expectation would be a courteous message saying 'Abate the nuisance, period.'" The pest control industry expects similar treatment.

Commercial operators maintain that they can and do accomplish effective control where public officials coöperate in requiring sanitation laws to be observed. Lax enforcement of the public laws encourages the customer to fail to coöperate with the PCO, whose work, therefore, cannot be successful. Without coöperation between public officials, the owner and the PCO, the commercial operator often becomes the target for blame and is labeled incompetent. Neither the PCO's nor health department sanitarians are magicians!

Segments of the pest control industry feel that health departments have not sufficiently emphasized to the public the importance of sanitation as a factor in rodent control, and the importance of rat control from the economic and health points of view. Also, commercial operators are too often not invited to state and district meetings where public health agencies may be dealing with matters of interest and concern to the industry. It is at such meetings that the results of research in the field are made known, and the PCO's are often left in the dark. Integration of public health agencies and commercial operators in rodent control activities depends to a large extent on the coöperation of personnel at the supervisory level, and it is on this level that such coöperation is often not forthcoming.

The pest control industry is eager to play a part in rodent control through preventive measures and environmental sanitation, if given a fair opportunity. In an increasing number of programs in which PCO's are involved, stress is placed on good sanitation, elimination of harborages or rat stoppage or both as the primary methods of rodent control.

Poisoning, trapping, and the like are advised as secondary methods. Many who are familiar with public health practices and principles do not realize the extent to which these originated in commercial practice. The commercial organizations are spending many thousands of dollars each year for the training of their service personnel [2] and this training is based upon these principles.

The National Pest Control Association, with a membership of about 700 commercial firms, has performed and is performing a Herculean task in raising the standards and level of competence of the industry. The executive secretary and the recently engaged technical director are energetic individuals of great ability. The Association collaborates in the sponsorship of conferences and short courses at Purdue, Massachusetts State, Louisiana State, California, Virginia Polytechnic, Texas A&M, Rutgers, and other representative schools. It engages in many other activities designed for the betterment of the industry.

It should be said that the organized pest control industry is gratified at the increasing recognition accorded it by health departments and the attitude that such agencies are taking with reference to shifting work to pest control operators.

RECOMMENDATIONS

Perhaps the major obstacle to integration of public health and commercial rodent control is the lack of understanding and rapprochement, especially on the supervisory level. Mutual distrust is gradually being overcome as programs in cities are proving beyond a doubt the efficacy of integrated service. Also, in recent years, the commercial industry has to a large extent drawn officials from public health for supervisory positions. This interchange of personnel should contribute immeasurably to better relations.

In the complete, integrated program, responsibility should be distributed in three ways:

1. The public has responsibility for good housekeeping on its own premises, and for insistence upon attainable community standards.
2. The public health services have responsibility for adequately staffed and supported research, health education, coördination, inspection, and enforcement.
3. The pest control industry has responsibility for organized and competently trained operators, sound counseling, and efficient technical preventive and corrective service within its authorized limits of operation.

Spelled out in specifics, National Pest Control Association recommendations for a completely integrated public health and commercial rodent control program include:

1. Legal recognition of the rat as a pest, particularly as a health and economic hazard.
2. Strict and uniform enforcement of building, sanitary, and health codes. The staff of inspectors for rat infestation should be enlarged and its activities intensified to the maximum extent.
3. Maintenance of an efficient system of garbage and rubbish collection and disposal.
4. Systematic surveys of premises and adjacent areas to determine those factors contributing to the presence of rats and the steps necessary to correct these conditions. A model inspection procedure should be developed for the municipal inspectors, and this procedure should be made known to the pest control industry. The purpose is to permit the operators to give more intelligent advice to their clients about measures to rectify conditions which may be cited or reported by inspectors.
5. When the presence of rats is determined on a premise, written notice should be issued to the occupant or owner to bring the condition under satisfactory and, where possible, complete control within a reasonable time limit. Inspectors should have a knowledge of whatever model rat control procedures may be developed for the pest control industry and they should be guided by it in their recommendations to building owners. This is to preclude the possibility of the owner's receiving diametrically opposed advice on the rat control procedures necessary and on the preferred sequence of their application.
6. At the time any notice is issued to the owner or occupant, it would be of assistance if reference were made regarding commercial

firms, either by suggesting some source of information as to competent pest control firms or by supplying a list of pest control operators recognized as doing satisfactory rodent control work. Literature relative to rat control should also be made available.

7. Unless suitable measures for compliance are taken within a prescribed time, and unless they are continued as long as needed, the inspecting agency should, through proper authority, have the work done by private industry. The bill for the work should be paid for by the agency and a lien for the amount placed upon the property.

8. Public education, publicity, a speaker's bureau, the production and distribution of pamphlets and leaflets, and all other public relations should be a health department function.

9. All participants in the complete rodent control program should meet periodically to exchange information, criticisms, and suggestions for improvement.

10. Health department agencies should make reinspections and order repairs and treatments necessary to insure continued compliance with existing regulations.

11. Any additional legislation necessary to carry out this plan should be determined and enacted.

Because the primary concern of both the public health agencies and the pest control industry is the elimination of rodents as an economic and health hazard, there is no doubt that a completely integrated program can and eventually will be accomplished. Where tried, it has proved eminently successful. Its extension to other areas of the country waits only on a thorough understanding of the problem and the application of proved methods.

REFERENCES

1. Eldredge, Bartlett W. Pests Are Optional. *Pests and Their Control* 16, 8:9–11, 1948.
2. Fellton, Herman L. How To Train Servicemen. *Pest Control* 18, 7:9–12, 1950.

Handicapped Mobilization Task Force

A special Task Force to plan for the more effective training and employment of handicapped persons in the defense mobilization program held its first meeting in Washington July 13. Composed of nationally known citizens familiar with various phases of serving and employing disabled people, its chairman is Theodore G. Klumpp, M.D.; president, Winthrop-Stearns, New York City, and member, Commission on Chronic Illness; medical director, Daniel Blain, M.D., chairman, department of psychiatry, Georgetown University School of Medicine.

Other medical members of the 11 man group are George G. Deaver, M.D., professor of clinical physical medicine and rehabilitation, New York University-Bellevue Medical Center; Harold Von Achen, M.D., medical director, Caterpillar Tractor Company, Peoria, Ill.; and Charles S. Wise, M.D., director, Department of Physical Medicine and Rehabilitation, George Washington University Hospital. Included also is Davis E. Geiger, president-elect of the National Society for Crippled Children and Adults. Among its consultants are Mary E. Switzer, director, Office of Vocational Rehabilitation, and Verne K. Harvey, M.D., medical director, U. S. Civil Service Commission. Russell J. N. Dean is its executive secretary.

Public Health Benefits from the Disposal of Garbage in Sewers*

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GLANCING back over the past 50 years, one cannot help but feel a sense of satisfaction with the progress that has been made in the field of environmental sanitation. At the turn of the century unsatisfactory water supplies were perhaps the greatest threat to the public's health. Major efforts were exerted to improve this situation and gradually the effects of this work were felt. Today, water supply problems are generally confined to maintenance and improvement. Wholesale inadequacies, unsafe and unprotected water supplies belong to the past.

As water supply problems became less prevalent the sanitary engineer concerned himself with one of the next major threats to the public's health—inadequate sewage disposal facilities. It is now a question of time until this matter is relegated to the same position as that of the water supply.

As these problems become minimized, attention is more intently focused on another important environmental health problem yet unsolved—the problem of garbage collection and disposal.

Garbage collection and disposal problems prevalent—Disposal of garbage by open dumping or by feeding raw garbage to hogs is common practice. In a post-war survey carried on in Indiana, out of 113 municipalities investigated, 96 used either open dumps or hog farms for the ultimate disposal of their garbage wastes. It is believed that this situation is generally prevalent over the country. The health hazards, nuisances, and unsightly conditions resulting from these methods of disposal need not be enumerated here.

It is encouraging at least to know that methods of garbage disposal have been developed in recent years which should provide a practical solution to this situation in most of our communities. The problems of garbage collection, however, and particularly those problems created by the garbage can, still remain.

The collection of garbage through the medium of the garbage can and garbage truck is the accepted method. Regardless of whether the collection service is municipally operated or is performed by commercial or private scavengers, there is a basic disadvantage to this procedure which cannot, or at least has not, been overcome. It is virtually impossible to provide a sufficiently frequent or efficient service, or to have clean and protected garbage cans in order to eliminate stored garbage as an attraction to insects, rodents, and stray animals.

The garbage grinder and dual disposal—The household grinder has been developed as one answer to the garbage collection problem. The development of the grinder and the dual disposal of garbage and sewage are thoroughly covered

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in papers by Cohn,[1, 2] Tolman,[3] Rudolfs,[4] Cosens,[5] Backmeyer,[6] and others.

With regard to the present status of this method of garbage disposal, it is sufficient to say: (1) It has been established that garbage can be treated along with sewage in a common treatment plant; (2) research has generally satisfied engineers that a sewer system adequately designed would not be adversely affected by ground garbage; (3) the installation of hundreds of thousands of garbage disposal units testifies to the fact that these units can be built to meet the exacting standards demanded by America's housewives.

The Jasper Plan—Early in 1949, after a careful study of the information which had been secured through research and practical application, the City of Jasper, Ind., a prosperous community of 5,200 persons, became convinced that the elimination of the garbage can through the city-wide use of individual household grinders was both feasible and practical.

Once it was decided to install household grinders in Jasper, the program developed rapidly. Municipal officials, led by energetic Mayor Herbert E. Thyen, with the aid of engineers, lawyers, legislators, newspapermen, and interested public health officials, made the Jasper Plan a reality within a short period of one and a half years after the idea was proposed.

The treatment plant—One of the first problems to be resolved concerned the means of treating the ground garbage. It is pertinent to observe here that the Jasper Plan was inaugurated at a time when the construction of a municipal sewage treatment plant was imminent. Consequently, when the sewage plant was built, it was made adequate for dual disposal. As a point of interest, the plant, a one-million-gallon-per-day activated sludge plant, was built at a cost of $300,000, of which $40,000 to $50,000 could be attributed to the additional capacity for garbage handling. Details concerning the treatment plant and much of the background material on all phases of the development of the Jasper project may be found in papers by Couch and Kulin.[7, 8]

Legislation—In order to purchase, finance, and install household garbage grinder units, it was necessary to obtain special legislative authorization. Suitable legislation was sponsored by the City of Jasper and passed by the Indiana State Legislature. The law (Chapter 87, Acts of 1949) has the following salient features:

1. It enables a municipality to acquire, own, operate and maintain a garbage disposal system consisting of garbage grinders, to be installed in private residences, business places, or other buildings.
2. It limits this authority to municipalities having or constructing sewage treatment facilities.
3. It provides that this installation shall be made only with the consent of the owners and tenants.
4. It provides that the cost of the grinders may be met by the issuance of revenue bonds in the same manner as these bonds are issued to meet the cost of sewage treatment plant construction. The city may not obligate itself by purchasing these units with municipal funds or municipal credit.
5. It permits service charges to be levied against the users of the grinders in the same manner as charges for water or other utility services are made.

Local ordinance—In addition to legislation on the state-wide level, the City of Jasper passed a local ordinance regulating the collection and disposal of garbage. Specifically, this ordinance makes it illegal for any person to make a business of collecting or transporting garbage within the city limits of Jasper without having first received a permit from the city. This permit will be issued only after the collection vehicle and the method of disposal proposed by the scavenger have been approved by the

local health officer as being in accord with general health regulations.

The ordinance does permit each individual to dispose of his own garbage provided this is done in a manner satisfactory to the Board of Health or its health officers. It prohibits depositing or placing garbage outside of residences unless taken to disposal points designated by the city.

Purchase and installation of grinders—With the passage of the enabling legislation, the way was made clear for the purchase of garbage grinder units. General specifications were prepared by the consulting engineers, Couch and Kulin, and bids were received on December 6, 1949. Bids were requested on both the sale and installation of the units. In the preparation of specifications the engineers attempted to give the bidders some knowledge of the difficulties that might be encountered in installation by enumerating the types of sink, size of waste outlet, and similar pertinent data. To obtain this information, a special survey was made of all the potential users (about 1,400) in the city. This survey indicated that approximately 60 per cent of the total number of sinks had drain openings of less than 3½ inches, which meant that they would have to be enlarged.

Other basic data submitted at that time by the engineers indicated that, of all the sinks requiring boring, approximately 80 per cent were porcelain enamel cast-iron sinks, 10 per cent were porcelain enamel steel sinks, 6 per cent vitreous china, and 3 per cent stainless steel. One cast-iron and one ceramic sink were also listed. This information was of particular importance, since the specifications held the contractor liable for any damage done to sinks in the process of enlarging the drains.

The problem of boring sink openings, the unknown difficulties that might be encountered in plumbing and wiring, were factors which only three of the six bidders were willing to gamble on. Low bidder on the project was the General Electric Supply Corporation, which agreed to furnish grinders at a unit price of $39.69 each, or to furnish and install units at a cost of $74.17 per grinder, including flow interlock switch. The cost of installing these units was divided about equally between plumbing and electrical work. Installation costs were estimated sufficiently high to balance the difficult installations against the more simple ones.

Financing—Subsequent to the receipt of bids, the City of Jasper decided, as an alternative to financing the project with revenue bonds, to have the grinders purchased outright by the individual citizen. This method of financing, with the resulting savings, was adopted after carefully sounding out local sentiment.

When the program was initiated, applications were distributed to the householders. Over 650 of these applications were signed and returned with deposits of from $2 to the total purchase price of $75 within a short time. Installation of grinders began in April, 1950. Home owners were notified that municipal collection of garbage was to be discontinued August 1.

Current status of grinder installations—Within the city, there are approximately 1,200 homes (90 per cent connected to municipal sewers) and 167 commercial and industrial establishments. Approximately 800 garbage grinders have been installed to date within the city limits. About 33 of these units serve two families.

There are about 50 residences which produce no garbage. Assuming that 140 to 150 of the business establishments also have no need for grinders, there remain 330 to 340 homes not served. Since a large portion of those homes not connected to the sewer system do not have

grinders, it is estimated that of those homes connected to the sewers only about 250 remain without grinders.

It should be stressed, incidentally, that the promotion of garbage grinder installation in Jasper is continuing. A goal of 90 per cent coverage has been set for the end of 1950.

Installation problems—In the installation of garbage grinders, four plumbing teams and two electrical teams were utilized. Gordon H. Roney, Commercial Engineer for the General Electric Company and developer of a sink-boring tool which proved to be very effective, supervised the entire project and instructed the teams before installations proceeded.

A rotary sewer cleaner was used at each house to clean the kitchen drain through the house sewer to the street connection. While the specifications required that house drains be reamed with a cutting tool to the building service sewer, the plumbers found that reaming of the entire sewer system to the street sewer gave a more satisfactory and trouble-free job. They therefore adopted this procedure as part of the routine installation operation without additional cost to the home owner.

In a few of the first installations it was found that reaming the sink drain only with a rotary cutting tool carried inert materials resembling pebbles of lime into the first horizontal line in the plumbing system, where these gravelly deposits settled out at the junction of the vertical and horizontal lines, forming a very effective filter, holding back garbage particles and quickly clogging the line.

In order to meet specifications, all plumbing and wiring were required to conform with local and state codes. Problems in wiring were rather frequently encountered. Separate circuits and fuses were used in every installation. In some cases this would not have been necessary, but in the majority of houses it was found that existing circuits were already overtaxed. Problems of amateur wiring and defective wiring were not unusual. As one unanticipated benefit of the program, a number of electrical fire hazards uncovered by electricians were corrected as soon as they were pointed out to the home owner.

On an average, each team has been able to install 4 to 7 Disposalls per day, taking about 2 hours for plumbing and 45 minutes for wiring. Sink borings can be made in about 18 minutes.

Servicing units—The contract between the City of Jasper and the General Electric Supply Corporation stipulated a one year unconditional guarantee of the units. The servicing of units during this period is being handled by a local General Electric dealer. Since the inception of the program in March, 1950, this dealer reports that less than one per cent of the units required any mechanical maintenance. The major problem has been in educating the housewife in the operation of the unit.

Environmental sanitation study—When it became apparent that the Jasper project was to crystallize, a plan was developed by the U. S. Public Health Service and the Indiana State Board of Health to take advantage of this excellent opportunity to investigate the effect of the mass installations of garbage grinder units in a community on its general environmental sanitation level.

A program was initiated to make "before" and "after" studies of the following:

1. Water supply
2. Sewer system
3. Sewage treatment
4. Refuse collection and disposal
5. Fly population
6. Rodent population
7. Food sanitation
8. Milk sanitation
9. Morbidity

While some material has been compiled in each of these categories, only a few studies have progressed sufficiently to be worthy of comment at this time.

Fly studies—The studies were started too late to obtain suitable fly population data prior to the installation of garbage grinders. Therefore, this study was made by using a nearby municipality of comparable size and population as a control. Surveys were made in two weekly periods (during the week of August 21 and the week of September 11). In the second week's survey, the fly populations increased by 38 per cent over the first week at Jasper, while decreasing by 13 per cent at the control city. Block average counts during the second week of the survey indicated an average of 31.56 flies at Jasper against 23.04 at the control town.

One factor affecting the decrease in fly count at the control city was the replacement of approximately 50 insanitary boxes, barrels, and similar unsuitable garbage containers by sanitary garbage cans as the result of a municipal campaign between the two survey periods.

Accumulation of refuse—The fly population increase at Jasper was undoubtedly due to conditions created by the discontinuance of garbage collection and a decrease in the frequency of rubbish collection. Accumulations of garbage in various types of unsuitable and uncovered or improperly covered containers were observed. Rubbish, including tin cans and such things as meat-wrapping paper, was also observed. Milk containers, beer bottles, and greens from restaurants were noted in 55 gallon drum-type open cans.

The survey, particularly the physical observations, did indicate that the transformation from garbage cans to garbage grinders was creating some sanitary problems. Insanitary disposal of garbage by individuals without garbage disposal units or by unlicensed scavengers was being carried on. This, of course, can and must be controlled by rigid enforcement of the city ordinance. This will be done after all householders have had ample opportunity to install grinders.

Rodent survey—A rodent survey of food handling establishments, the city dump, and a feed mill in Jasper was made on April 18 and 19, 1950. A subsequent survey during the period May 17 through May 18 was made of 72 private homes in Jasper. Base line data were obtained for comparison with a similar survey the following year.

During the rodent survey of the food handling establishments, occasion was taken to rate each of the restaurants. The U. S. Public Health Service sanitation rating of the community at that time was 47.48 per cent. Subsequent surveys will be made to determine any improvement in the overall sanitation rating.

Observations of sewers and treatment plant—Work on sewers, sewage, and sewage treatment began early in March. Seven key manholes were selected for sewer observations. Photographs were taken, and observations of sludge deposits and analyses of these deposits were made.

During the first week in October, 1950, six months after the first survey, the sewer system was reinvestigated. These sewers, having gradients providing velocities as low as 1.7 feet per second when flowing full, were found to have remained in substantially the same condition as when first observed. Street crews indicated that no problems had arisen that could conceivably have been due to garbage grinders.

Sewage flow and its characteristics were observed over a two week period early in March. During this time seven

24 hour surveys were conducted and a complete analysis was made of the composited sewage samples.

Late in June, 1950, the sewage treatment plant was completed and placed in operation. Analyses of raw sewage have been made on the basis of 24 hour samples for over six weeks since the latter part of July, 1950. The raw sewage has been considerably stronger, as might be expected, both in suspended solids as well as in B.O.D. The plant has functioned satisfactorily with, of course, the usual "breaking in" problems.

SUMMARY

1. There are certain basic disadvantages to our present method of garbage collection which cannot, or at least have not, been overcome.
2. The development of the household garbage grinder, and the work that has been done in disposing of garbage with sewage, has set the stage for the mass installation of grinders at Jasper, Ind.
3. With the installation of grinders in each home, and through strict enforcement of a local garbage ordinance, it is hoped that the "Jasper Plan" will serve to eliminate the garbage can and the garbage truck.
4. About 800 garbage grinder units have been installed in Jasper since March, 1950. It is anticipated that 1,000 units, serving about 90 per cent of the population, will be in place by the end of the year.
5. The installation of grinder units has proceeded with no particular difficulty. About 60 per cent of the sink drain openings had to be enlarged. This operation was practically 100 per cent successful. An average installation took from 2 to 3 hours.
6. The U. S. Public Health Service and the Indiana State Board of Health have embarked on a study program to investigate the effect of the mass installation of these grinders on the general sanitation level of the community.
7. Studies to date have indicated that the transformation from garbage cans to garbage grinders has created some sanitary problems. Strict enforcement of local ordinances is necessary to eliminate this condition.
8. Investigation has indicated no adverse effect of ground garbage on the Jasper sewer system in the first six month period.
9. The sewage plant, placed in operation in June, 1950, was designed to handle ground garbage as well as sewage. The plant is still in the tuning-up period, with no particular difficulties experienced.

REFERENCES

1. Cohn, Morris M. Effects of Food Wastes on Sewers and Sewage Treatment. *Sew. Works J.* 18:477 (May), 1946.
2. Cohn, Morris M. Recent Developments on Dual Disposal. Presented at the Annual Meeting of the Federation of Sewage Works Associations, Washington, D. C. (Oct. 9–13), 1950.
3. Tolman, S. L. Ground Garbage—Its Effect Upon the Sewer System and Sewage Treatment Plant. *Sew. Works J.* 19:441 (May), 1947.
4. Rudolfs, Willem. Effect of Ground Garbage on Sewage Treatment Process. *Sew. Works J.* 18:1144 (Nov.), 1946.
5. Cosens, K. W. Household Garbage Grinders—How They Affect Sewers. *American City* 64:134 (Sept.), 1949.
6. Backmeyer, D. P. Operating and Experimental Observations in Digestion of Garbage with Sewage Solids. *Sew. Works J.* 19:48 (Jan.), 1947.
7. Couch, L. I. A Kitchen Grinder in Every Home. *American City* 65:112 (May), 1950.
8. Couch, L. I., and Kulin, H. J. Municipal Garbage Disposal by Houshold Grinders at Jasper, Indiana. *Sew. and Indust. Wastes* 22:1138 (Sept.), 1950.

The UAW-CIO and the Problem of Medical Care*

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IN the past two years organized labor has given hospital and medical care insurance a priority in collective bargaining second only to retirement income security programs. Even though the impact of the Korean incident on the cost of living has resulted in a shift from pensions and health security to wage adjustments, the underlying pressures for health insurance as a top priority item will persist. The reason behind this pressure is easily understood when it is realized that labor's drive to make higher standards of medical care more generally accessible is an integral part of the larger drive for a higher standard of living.

Health security is of basic concern to the nation as well as to individuals. Mobilization and expansion of our industrial capacity for defense will make even more evident the need for strengthening and expanding health services as an essential economic and social activity having a high priority claim on allocation of our national product.

That programs of security—pensions, income maintenance during periods of temporary and permanent disability, and survivors' benefits, as well as health insurance—are not a "fringe" concern to workers has been made clear by the support behind collective bargaining demands for these programs. The concept of security as an essential element of a higher standard of living has been given new meaning in America as a result of the major 1949 and 1950 strikes over the issue of workers' security in the steel, coal and automobile industries. The real meaning of these strikes is that improved standards of workers' security, including medical service and better methods of meeting the cost of comprehensive medical care, must be given a higher priority than ever before in the allocation of our national product.

At this time, organized labor recognizes as never before its responsibility in giving direction to the desire of workers and their families for more and better health services and in finding ways to finance and organize the services that are required.

The worker's medical care problem can be quite simply stated. He wants to have access to the kind of medical care that our research people have made possible. This requires the services of well trained physicians who have ready access to laboratory and x-ray services and the assistance of specialists and other auxiliary personnel. The worker and his family want the kind of medical care which assures early and proper treatment; which will avoid the economic and social waste and the needless loss of individual potentiality resulting from the lack of treatment that medical advances have made attainable.

The problem of financing—of devising satisfactory methods of payment—must be solved as a prerequisite to progress

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on the fundamental problem of making available a high quality of medical care. The delay in building better community medical care programs has been attributable in large part to inadequate methods of financing and inability to allocate the necessary proportion of our national product to this purpose. Without funds to build hospitals and maintain hospital beds and without funds to pay physicians for their services, a community will not have a sufficient supply of hospital beds or of physicians.

The availability of hospital and medical facilities and personnel is in direct relation to the amount of funds that the people in a community have been able to allocate for them, rather than in relation to the need of the people for hospital and medical care. To build, equip and staff modern medical institutions requires adequate financing. Group medical practice requires more facilities, equipment and services per physician than many, if not most, physicians now have in their individual private offices. Comprehensive medical care, including the necessary auxiliary specialists, is expensive. But modern medical facilities, group practice and comprehensive care are essential for health security by present-day standards.

Unfortunately, however, the average industrial worker has not been able to allocate enough purchasing power to buy the quality or quantity of medical services that he and his family need to enjoy the full benefits of modern medical science. This difficulty has been compounded by reliance on an antiquated method of financing whereby allocation of funds by individuals to cover the cost of medical care is expected to be made after sickness strikes. Furthermore, the manner of allocating medical costs has resulted in the brunt of the burden falling on a relatively small proportion of the people—those afflicted with a major illness. Thus, a financial bottleneck has blocked the expansion and improvement of medical services.

With our increasing industrial productivity and with improved methods of organizing and paying for medical services, our goal of high quality medical care made generally available will, for the first time, become possible of attainment.

The growth and development of tax-supported medical and public health services have also been retarded by the lack of funds. Very few, if any, communities have the well rounded public health programs that our leaders in public health know to be desirable and necessary for optimum advantage. Community programs for child health and welfare are, almost without exception, far short of the minimum standards known to be essential to safeguard the well-being of all children and to provide adequate treatment for those who are physically and emotionally handicapped. Community and state mental hygiene programs are all sadly underdeveloped. Our medical schools, like our public health services, need new buildings, more equipment, more staff, more funds for research and scholarships for students. Wherever community health program needs are evaluated or health services for individuals are examined, we find the need for improvement and expansion.

In face of these facts, labor's role in health and medical care programs seems quite obvious. It is not unlike labor's role in strengthening other aspects of our standard of living; labor's overall objective is an expanding economy permitting increased energy and resources to be allocated to meet the needs of people. Our economy must not only provide the food, clothing and shelter that are needed, but it must provide the health services, the social security protection, and the educational services that are necessary for a physically and emotionally strong people.

The medical profession and the public health specialists must furnish

the technical leadership for expanded medical services. In this next decade, society's demands for professional leadership will far exceed the demands of the entire first half of this century. Just as our great industrial cities were made possible when sanitation standards were successfully implemented, the goal for health security is going to be achieved when uniformly high community and individual health standards are satisfactorily met. Organized labor, acting alone, cannot achieve these things. Labor and the medical professions, as responsible social groups, must recognize that our present national productive capacity permits raising health standards up to the level of other components in our American standard of living.

By bringing the question of health insurance into collective bargaining as an economic issue, organized labor has taken the first step toward allocating the economic resources required for an expanded national hospital and medical care system. Likewise, labor's support of tax programs for public health purposes is consistent with its role of pressing for an expanded economic base for all health services.

Although we have the "know how," there has been comparatively little progress on a nation-wide basis up to the present time toward resolving the problem of financing medical care. Even today—with full apology to the American Medical Association—health insurance protection against the cost of physician services cannot be purchased; it is not yet available to the majority of the American people. The truth of this assertion was demonstrated to such unions as the UAW-CIO when, during this past year, efforts were made to bring one and a quarter million members and their families into health insurance plans. The simple fact is that most of the voluntary plans have not given the people programs of medical insurance which will assure coverage of even half the total cost of medical care. It must be recognized that we have yet to make a real dent on the problem of providing adequate medical insurance.

With the exception of a few communities, where local comprehensive medical care plans have been established, the only practical choice for provision of benefits under labor-management medical insurance programs established through collective bargaining has been commercial insurance or Blue Shield. In some cases programs might be set up and directly operated by labor or by joint labor-management boards. However, for large unions such as the UAW-CIO, with over a million members and with hundreds of separately negotiated contracts covering workers scattered throughout the United States and Canada, it has not been immediately feasible to establish on a broad scale union-operated medical insurance programs. Even though collective bargaining is beginning to make sufficient funds available for medical care, financed on the basis of the insurance principle, a satisfactory mechanism for the provision of medical benefits and services has still to be developed.

The insurance companies, which have been selling medical insurance for the past decade or more, have been able at best to provide only cash benefits to help meet the cost of selected procedures—generally surgical. Some insurance companies have returned in benefits as little as half the premium paid. On the average, the insurance companies pay in benefits only about 80 per cent of premiums even where coverage is on a group basis. In no instance have the insurance companies assumed the social responsibility of working out with organized medicine a medical program which will assure covered workers that benefits will meet the full cost of medical or surgical services when such services are provided by their physician. In-

surance companies have not encouraged expanding standards of care in their plans, nor have they shown a desire to move toward comprehensive protection. On the contrary, there is mounting evidence that they resist the trend toward comprehensive benefits and may actually, because of lack of provisions to assure quality of care, be an influence toward lower standards.

The conclusion seems justified that neither workers nor physicians can look to insurance companies to develop satisfactory mechanisms for assuring access to high quality medical care on a prepayment basis.

The Blue Shield Plans contain many of the limitations of the approach offered by insurance companies. Although most Blue Shield Plans provide that families with incomes below a given figure will be guaranteed protection against medical expense for covered medical or surgical procedures, the income ceilings are generally so low that they exclude most workers. However, the Blue Shield Plans have a potentiality for flexibility and development that does not exist for the insurance companies. So far this potentiality has not been realized; and it seems unlikely that it will be, until organized medicine is prepared to abandon its support of commercial insurance and make a conscientious attempt to catch up with changing social and economic patterns by adapting Blue Shield Plans to meet present-day requirements.

Provision of comprehensive hospital insurance does not present the same difficulties for organized labor as does medical insurance. This is true because Blue Cross and the hospitals, in coöperation with labor and management, have in many states assumed the social responsibility for providing comprehensive hospital insurance. Where this has not been fully accomplished, there is encouraging movement in this direction. Hospitalization protection offered by the insurance company plans, however, has the same basic limitations which characterize insurance company medical plans. With rising hospital costs and the desire of the insurance companies to freeze benefits in terms of dollar amounts in order to stabilize their rate structure, the tendency is for the commercial insurance plans to cover less, rather than more, of workers' hospital bills.

Prior to the labor-management hospital insurance programs entirely or partially paid for by the employer, the workers most in need of protection—the ones with dependents and heavy financial responsibilities—frequently failed to authorize payroll deductions. Not infrequently the hospitalization made available to workers by employers was so inadequate as to be almost without value. The cost of comprehensive protection priced many workers out of the market, so benefits were kept low in order to keep the cost to the worker at a minimum. Insurance companies and Blue Cross, in competition with each other, tended to reduce and restrict benefits so that they might keep rates low enough to assure wide participation. Hospital deficits and gaps in hospital services have been directly related to the fact that many patients could not pay for the services provided. Some workers were forced to delay hospitalization or go without recommended hospital care because they could not pay for it.

In the space of a few months the picture has changed for both workers and hospitals. The impact of allocating economic gains for hospitalization insurance through collective bargaining is beginning to be evident. Communities with a large percentage of industrial workers are finding for the first time that the shortage of hospital beds is more than a statistical problem. A number of industrial communities have found that since the cost of hospital care is underwritten by labor-negotiated hospi-

tal insurance, the inability of patients to pay for care is no longer a barrier to maintenance of existing hospital beds, to expansion of hospital facilities, and to strengthening of hospital standards. The long-range implications of this are obvious.

In a few years it is probable that hospitalization insurance under collective bargaining programs will eliminate for the employed industrial worker the economic burden of hospital expense for acute illness. The cost of such hospitalization insurance will be met by employers as a cost of doing business and will be recognized as a part of the workers share in economic gains resulting from increased productivity. Through this mechanism we will increase the allocation of our national product to hospital care—permitting maintenance of needed hospital beds and the raising of community standards of hospital care. Hospital services will reflect their sounder financial position which this makes possible by moving toward building group medical practice and higher standards of hospital and medical care. In the next decade the small, ill equipped and poorly staffed hospital which now provides a large proportion of total beds available will tend to disappear. Convalescent homes and visiting nursing services, as an extension of the hospital services, will emerge as a part of the hospital insurance program.

Since medical insurance under collective bargaining programs has not, except in isolated instances, been established on other than a cash indemnity basis there is little change evident or to be expected in the adequacy of medical care as a result of these programs. The recent programs have tended to extend the cash indemnity approach from surgical procedures to in-hospital nonsurgical medical care. These surgical and nonsurgical in-hospital benefits are far too limited in scope, lacking in balance, and lacking in emphasis on quality of care to have the same positive impact which is occurring in the area of hospital services. Furthermore, neither patients nor physicians have any assurance under the cash indemnity approach that the indemnification schedules will be related to actual cost of services rendered.

To meet the failure of cash allowances to cover cost of physician charges, the insurance companies have tended to increase their fee schedules to the level of the highest fees charged by individual physicians in the community. Cash indemnity fee schedules under insurance programs and under Blue Shield, as well as under the U. S. Veterans Administration home care program, tend to reach such higher levels even though a substantial number of physicians in a given community customarily charge less. The inflationary effect of these cash indemnity benefits on the costs of all medical care for the total population and for all types of programs, including governmental, cannot be long ignored; nor can the fact be sidestepped that the public demand for health insurance will not be satisfied by programs built on this principle. The upward spiral of cash indemnity allowances will in itself defeat the purpose of voluntary plans by making prohibitive extensions in scope of benefits. In fact, this may already be the case.

The future development of medical services for employed industrial workers is not clear. The insurance companies have failed to point the way. Blue Shield Plans, as now operating, with their inadequate income ceilings, too closely resemble the insurance company approach to assure progress. The New York Health Insurance Plan has the elements of a satisfactory community pattern for keeping pace with our accelerated expanding standards of health service. The same is true for the Permanente Health Plan on the West Coast and for the demonstration of comprehensive prepaid medical service developed

by the Group Health Association of Washington, D. C. There are other demonstrations, though widely separated and isolated, to give guidance in the development of medical services.

With labor earmarking a portion of its annual economic improvement factor for medical insurance to finance expansion of medical protection, there is a substantial start toward the increased allocation of the national product for medical services. This appropriation of funds will force action on health insurance, through voluntary plans or through governmental action, or more probably through a combination of both.

While labor is working toward methods of financing hospital and medical services for the employed worker and his family and is participating in the planning of organized services, it must be remembered that collective bargaining programs, though covering a large segment of the population, do not alone solve the problem of a national health program. With higher standards of health services for the employed industrial worker, pressures will be created for similar expansion of services covering groups outside organized insurance plans.

The upward movement in the general level of health services as a part of improved living standards is going to force public agencies to face the problem of a universally high level of public health service and satisfactory standards of public medical care. Government agencies cannot expect insurance plans to subsidize deficits caused by underpayment to hospitals for state and county cases. Neither can financing of training medical personnel and of research projects be met with funds paid as insurance premiums. Tax programs for the expansion of medical schools and for the organization of well rounded programs for chronic disease detection and treatment are as integral a part of the drive for health services as are health insurance and public health activities.

In the next decade the general public will become more articulate about health problems of all kinds and will demand greater voice and participation in policy decisions, whether as members of state boards of health, or on Blue Cross and Blue Shield boards, or as voters in selecting public officials.

Just as our standard of living today requires inside plumbing, a bathtub, electric lights, and ventilated sleeping rooms as minimum standards of housing, so our standard of hospital and medical services within the next decade will require universal prepayment covering the entire cost of comprehensive medical services, as well as standards of care that bring modern diagnostic and treatment services within reach of every patient and every physician. The physician without hospital privileges and the hospital without laboratory and x-ray facilities will disappear, just as the health department without comprehensive preventive, educational, and treatment responsibilities will fade away as a symbol of a period that has become history.

Democracy in America is going to meet the world-wide challenge by demonstrating its dynamic qualities in meeting the needs of people to realize personal as well as community potentiality. All groups in America are going to find a way to work together to accomplish these objectives.

A Community Surveys Its Home Accidents

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THE Health Department and Visiting Nursing Association of Lynn, Mass., an industrial city of approximately 100,000 persons, carried out a survey* of accidents occurring in the homes visited by public health nurses. The object of the survey was to determine the circumstances of home accidents in Lynn, in order to plan a rational control program.

Prior to the Lynn survey, the following limitations were agreed upon:

1. Only the circumstances of accidents occurring on home premises were to be sought.
2. Only accidents in the home which occurred in the 30 day period prior to the nurse's visit to the home would be considered. Accidents which caused less than one day's disability would not be considered.
3. Nursing time was not available for calls to homes for the sake of an accident survey alone. The survey was to be part of the nurses' regular duties.
4. As a pilot study, it was not considered feasible to undertake continuous sampling for a prolonged period. Therefore, it was decided to survey for four months in the year—one month to be chosen from each of the four seasons in order to detect possible seasonal variations.
5. During the chosen four months, each nurse carried with her a supply of mimeographed questionnaires. In each home she visited, the nurse inquired if an accident had occurred in the past month to any member of that household. If there had been an accident but it had happened outside the home premises, the nurse checked the appropriate space—public, non-motor vehicle; motor vehicle; or industrial. No further details were requested. If the accident had been on the home premises in the past month and had disabled the victim beyond the day of its occurrence, the entire questionnaire form was completed. In every home visited, the names and ages of persons ordinarily residing in the home were recorded in order to provide a population basis for study.
6. The questionnaire used was a modification of the Kansas State Fatal Accident Report form.[1]

During the four month survey period, data were collected on 11,830 persons residing in 2,619 homes visited. Sixty-one disabling home accidents which happened in the 30 days prior to a nursing visit were studied. In addition, note was made of 29 accidents outside the scope of the survey.

The 11,830 survey population was 48.3 per cent male and 51.7 per cent female. Sex was not recorded for four infants.

The survey population, and accidents among this population, cannot be considered a true sample of the total population of the City of Lynn. The surveyed population contained a disproportionately large number (50.1 per cent) of persons under 20 years of age, and in this, as in other respects, the group was a selected population. Conclusions drawn from this survey, therefore, are not applicable to the total population of Lynn, but only to the group served by nurses of the Lynn Health Department and the Lynn Visiting Nursing Association.

The occurrence of 61 home accidents among 11,830 persons is a rate of 5.2 disabling home accidents per 1,000 population. These are 30 day rates, and

* The Lynn Accident Survey was conducted under the supervision of Dr. James A. Dumas, Health Commissioner of Lynn, Mass. Permission to publish this report has been given by Dr. Dumas.

projected to annual rates are 61.0 per 1,000 population. No deaths were reported in this series.

There was a statistically insignificant seasonal variation in the incidence of disabling home accidents. January, with the highest incidence, showed almost twice the accident rate of October, the lowest incidence month. June ranked second to January; and April was third, with a rate of 4.8 per 1,000.

Race of the accident victim was judged an unimportant factor in this series and, similarly, *marital status* was not important as a determinant.

A very important host factor influencing the incidence of home accidents in this group was the age of the victims. Surprisingly, no accidents were reported in infants. Persons between the ages of 1 and 20 years incurred 72.2 per cent (44) of the accidents, and 68.9 per cent (42) of the accidents occurred in children between the ages of 1 and 15 years. Of the total population surveyed, 39.6 per cent were between the ages of 1 and 15 years. No accidents in this series were reported in persons aged 20 to 30 years, but 14.8 per cent (9) occurred in persons aged 40 to 65 years. Accidents to persons 60 to 95 years of age were 9.7 per cent (6 cases) of the total.

Age-specific accident rates were highest for the oldest age groups—28.5 per 1,000 for ages 80–84 years, and 27.7 for ages 85 and over. The next highest rate was in the group aged 1–5 years, and the next in the group aged 4–14 years. If the age groups are combined to give larger numbers, persons aged 65 years and older had an age-specific rate of 10.2 per 1,000, and ages 1–14 years a rate of 9.0 per 1,000.

Sex, in this series, seems a less important host factor than it has usually been considered from a study of accident deaths alone. Age must be considered with sex to elucidate its importance, since the rates for all injured males (30) and all females (31) were nearly the same.

Females under 5 years of age were more apt to have a home accident than males of the same age. From the ages of 5 to 20 years, males had 16 accidents, compared to 7 among females. From ages 35 to 50 years, accidents showed the same incidence among males and females, but from age 50 years up, no male in this series had a disabling home accident—the 8 accidents in this older age group happened only to females.

The timing of the occurrence of home accidents, in this series, probably reflects exposure of the group to home hazards. Home accidents were slightly more common on Saturdays and Sundays, since 34.4 per cent of the home accidents occurred on these days.

The time of day in which the home accident occurred is interesting in that 54.1 per cent of these accidents occurred in the afternoon, and of the accidents occurring at this time, 78.7 per cent were among children under 15 years of age.

The most striking observation to be made from an analysis of the location on the home premises of the accidents reported is the large percentage that occurred outside the house—54.1 per cent (33), if one includes in this category the accidents that happened on outside steps, porches, yards, and driveways. More males (59.4 per cent) were injured in these outside accidents than females. Only four (12.1 per cent) accidents outside the house happened to adults, while 87.9 per cent were among children under 15 years of age.

Of accidents outside the house, 21 (63.6 per cent) were falls—all of them except two among children under 15 years. Seven (21.2 per cent) were cases in which the victim was struck by an object—usually a case of one child throwing a missile which hit another; the remainder were miscellaneous in type.

About one quarter (24.6 per cent) of all the accidents occurred on inside or

outside steps. Sex of the victim was not important among this group—seven were female and eight male. Of the stair victims, 33.3 per cent (5) were adults.

A fall was the mechanism of 66.6 per cent (40) of all home accidents in this series. Half of these falls were from one level to another, and half were falls on the same level. The rate per 1,000 population for falls varies with the season—highest (4.1) in June, next highest in April (3.3), third in January (2.9), and lowest in October (2.0).

Females were slightly more apt to receive their injury by a fall than males (23 females, 17 males). It seems more significant that of the 14 persons of 40 years or more who were injured, 78.6 per cent (11) received their injuries by falls. Only two females and one male over 40 years of age were injured by other mechanisms than falls. All females over 60 years of age were injured by falls.

Of the 42 accidents among children under 15 years, 69.0 per cent (29) were falls. These were equally divided between the sexes and an almost equal number were falls from a height and falls on the level.

If types of accidents among children are divided into groups by age, it seems important to note that children aged 1–4 years are more apt to fall from heights, and children aged 5–14 years to fall on the level. Otherwise there is little difference between these two younger age groups as regards type of accident.

The agent—the object actually causing the injuries in the accidents—was listed for these 61 accidents, and 21 different agents were found. In some cases, the agent may reveal a way to prevent similar injuries in the future. In this series, it was obvious that yards should be rid of bottles and glass which invite injury, and that nails should not be left in a position to injure a child. But in most cases, means of prevention must be sought in the host himself or in the environment other than the agent.

As is usual in statistical surveys of home accidents, the people involved in accidents in Lynn were pursuing their ordinary activities, and this item apparently gives little information about etiology.

The nature of the injury is of greater importance as an indication of the cost of accidents than it is as an approach to their cause. The commonest type of injury, since it often accompanied other injuries, was contusions and bruises.

More males suffered lacerations than females (12 males, 7 females) and all lacerations in males occurred among children. In this series, twice as many females (10) as males (5) received fractures as the result of their accident. We believe the number of fractures in this series indicates a tendency to report more serious injuries, and to forget injuries of less serious nature which perhaps disabled the victim for one day only.

There was a marked variation in the amount of disability from the injuries studied. A few accidents with prolonged disability greatly increased the person-days of disability. The average disability was 6.04 days per case, but 42 of the 61 cases had 6 days or less disability.

Lasting disability as a result of their accident was reported by three persons in the group. None of these disabilities was severe or total. In five cases, a decision concerning permanent disability could not be made when the report was returned because the patients were still under treatment.

Twelve of the 61 patients gave a history of previous accident, in 16 cases the question was not answered, and 33 stated they had had no previous accident history. We are inclined to think that this question was often passed over lightly by the questionee with no answer at all, or with some response such as "usual childhood accidents," and that

only complete medical case histories would reveal data valuable in judging accident proneness.

Subsequent to the survey, specific recommendations were made for a home accident control program in Lynn. The recommendations included initial and continuing emphasis on control of home accidents to Lynn children, with emphasis upon adult supervision of younger children and protected play areas for older children. The secondary emphasis should be upon accidents to women in the home, with environmental hazards the focus in middle-aged women and physical disability the focus in elderly women. Concurrently, methods for continued epidemiological study of home accidents, inservice training and program functions of all public health personnel, and utilization of community organization in a home accident program were recommended.[2]

Specific recommendations based on this survey are of importance primarily only to the surveying community. The important consideration would seem to be that this simple epidemiological method permits a community to apply specific control measures to its own home accident problem. Blanket control measures have always proved expensive and unproductive. Further, an evaluation of a community's home accident problem, based on deaths alone, results in a distorted view of the situation.[3]

Home accidents as a community health problem are primarily the concern of the health department [4] and the medical profession. Therefore, they are approached most readily by the epidemiological method already familiar by long use to these professions.[5] This survey is presented as an example of the method utilized in one Massachusetts community. Some communities have used survey or reporting techniques to define their home accident problem, but most communities are unaware of the extent and nature of the toll exacted by nonfatal home accidents within their boundaries.

SUMMARY

The Lynn Home Accident Survey is reported as an illustration of a method by which a health department can study its home accidents in order to initiate specific control measures, without added appropriations or personnel.

This method of initial surveying is being sponsored by the Massachusetts Advisory Committee on Accident Prevention in other communities in Massachusetts. Therefore, the Lynn survey has proved valuable as a pilot study in methodology. Although they have not been discussed here, certain flaws in technique became apparent in the course of the survey and changes in method were inaugurated in subsequent surveys in other communities. The chief defects were lack of exact criteria for disability, especially among children, and the unreliability of the questionnaire in detecting possible accident proneness.

REFERENCES

1. *Kansas State Board of Health, Kansas Accidental Death Reports*, 1932–1948.
2. Brightman, I. J. The New York State Home Accident Prevention Program, *A.J.P.H.* 39, 9:1149–1155 (Sept.), 1949.
3. Roberts, Helen L., and Gordon, John E. Home Accidents in Massachusetts. *New England J. Med.* 241:435–441 (Sept. 22), 1949.
4. Accident Prevention—An Essential Public Health Service. Program Developed by Subcommittee on Accident Prevention, Committee on Administrative Practice, American Public Health Association. *A.J.P.H.* 35, 3:216–218 (Mar.), 1945.
5. Gordon, John E. The Epidemiology of Accidents. *A.J.P.H.* 39, 4:504–515 (Apr.), 1949.

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THE VETERINARIAN IN PUBLIC HEALTH

IT is a source of special gratification to the editor that we have been able to present to our readers in the last two issues of this JOURNAL a substantial group of papers in the field of veterinary public health.

The subject is one of major importance that has been recognized by the setting up of a special Expert Group on Zoonoses under the joint auspices of the World Health Organization and the U. N. Food and Agricultural Organization, which held its first meeting in Geneva last December, with Dr. B. D. Blood and Dr. J. H. Steele as its U. S. members.[1]

This committee has prepared a list [2] of 86 different diseases actually transmissible between other vertebrate animals and man (20 virus diseases, 20 bacterial diseases, 10 nematode diseases, 10 trematode diseases, 9 cestode diseases, 8 protozoal diseases, 7 rickettsial diseases and 2 fungus diseases), with 6 more diseases caused directly by insects and arthropods transferred from animals to man. The following 10 of these diseases seemed to the committee of sufficient importance to warrant intensive study of sanitary methods for their control: bilharziasis, the equine virus encephalitides, hydatidosis, leishmaniasis, leptospirosis, psittacosis, Q fever, rabies, trichinosis and tularemia.

It is gratifying, then, to note that a substantial number of veterinarians (21 candidates in 6 schools last June) are registering for the M.P.H. degree in our schools of public health and that this group was actively represented at the A.P.H.A. meeting in St. Louis. They should feel at home with us. The doctor and the dentist have commonly been trained (with some notable exceptions in the dental field) in schools where major emphasis was laid on the treatment of individual cases of disease. The veterinarian, from the start, has been accustomed to the concept of the protection of populations against crowd diseases and malnutrition. He fits with special facility into the family of public health.

1. *Chronicle of the World Health Organization* 5, 5:127, 132 (May), 1951. Also, W.H.O. *Technical Report Series* No. 40, 1951.
2. World Health Organization, Joint W.H.O./F.A.O. Expert Group on Zoonoses, W.H.O./Zoon/16 W.H.O. Geneva, Feb. 16, 1951.

ECONOMY AND PARSIMONY AGAIN

IN view of the unavoidable financial burdens of national defense, it is clear that the costs of other branches of government should be carefully analyzed in the interest of economy and efficiency. It should be noted, however (as pointed out in these columns before) that the word "economy" in its derivative sense, signifies "wise management of the household." It does not necessarily mean "not spending money." That is "parsimony."

It is parsimony, not economy, to reduce appropriations for essential health services. The most basic of all factors in national defense is the health of our people.

Miss Katharine F. Lenroot, Chief of the U. S. Children's Bureau, rendered a useful service when she testified before the Congressional Committees last spring. She was asked to estimate what it would cost to support, today, the same services to the states provided by the Bureau in 1947 at a cost of $22,000,000. The figure comes out at $32,600,000. Meanwhile, there has been an increase of 16 per cent in the child population under 18 years of age and of 28 per cent in the population under 5 years of age. If the same proportion of children were served as in 1947, the present cost would be $37,700,000. To appropriate a substantially lower figure (as was done) is not sound economy but unintelligent parsimony.

Incidentally, we may well take this occasion to express the gratitude of the public health profession to Miss Lenroot on her retirement for the able and gallant service she has rendered; and to voice our satisfaction that the future of the Children's Bureau is to be placed in the capable hands of our colleague and dear friend, Dr. Martha M. Eliot. It is of special interest to note that, for the first time, the Children's Bureau is now functioning under the overall direction of a physician, a gratifying recognition of the important role of health in the promotion of child welfare.

Another interesting side light on the problem of public health financing was the address delivered by President Truman on the occasion of the dedication of the new National Institute of Health Clinical Center at Bethesda, last June. The President reviewed with a pride, which we may all share, some of the past accomplishments of the U. S. Public Health Service. He pointed out that "scientists of the Public Health Service were the first to discover that pellagra was caused by a dietary deficiency, and they devised the means for its prevention and cure. They found the cause of Rocky Mountain spotted fever and how to vaccinate against it. They developed the use of fluorides for the protection of teeth, opening the way to the major reduction of dental decay. Public health research workers right here at Bethesda developed a vaccine against typhus. Their vaccine has kept our forces in Korea free from typhus, while the North Korean and Chinese Communists have suffered seriously from that disease."

The President referred also to the expanded grants of the Service for research in the medical schools of the country, and to the urgent need for aid to these schools which face such serious financial difficulties. All of these problems are essential parts of our program of national defense.

To the writer, the most disturbing passage in the President's address was his estimate that in 1950, the sum of $231,000,000 was spent for public health in the United States: $45,000,000 by the federal government, $96,000,000 by the state governments and $90,000,000 by local governments. These figures are not cited by him in criticism but apparently with a certain satisfaction. Yet to the student of

health administration, the fact that the most prosperous nation in the world should spend only $1.54 for its public health program is disturbing. We know quite well that an adequate local health program costs at a minimum $2.50 per capita, and that an additional $1.00 per capita should be added for the special services provided by federal and state governments (the total minimum needed being less than one-half of one per cent of our national earnings). It will be noted that our federal and state appropriations just about meet such requirements. If, however, the figure of $90,000,000 for local health services is correct,[1] our cities and counties and towns are providing about one-fourth of the sum necessary for an effective program. This should be a cause of serious disquietude to all students of the problems of public health—and particularly to that vocal element in the community which is constantly harping on the "fearful dangers of federal domination."

The federal and state governments are fulfilling a reasonable share of their responsibilities. The local areas appear to have shamefully neglected that major part of the program which should be conducted at the level of the city, the county, and the town. There is an urgent challenge here to the leaders of the public health profession and to the group of voluntary agencies which are backing the program for the development of full-time health units for the nation.

1. The figure cited probably does not include the cost of public health nursing service provided by voluntary agencies. If this is the case it should be increased by a sum certainly not in excess of twenty millions.

UNMET CHALLENGES IN TUBERCULOSIS CONTROL

THE campaign against tuberculosis has again and again pointed the way to developments in other fields of public health. Koch's discovery, in 1882, was one of the first major triumphs in the history of bacteriology. It was the pioneers in combating tuberculosis who initiated the concept of the voluntary health agency. Public health nursing, in the modern sense, had some of its earliest applications in connection with this disease. The tuberculosis sanatorium has played a major role in establishing the concept of public responsibility for medical care above the level of indigence. These advances have worked wonders in reducing the toll taken by the tubercle bacillus; but the job is not yet finished.

A recent survey[1] in Syracuse, N. Y., has shown that intensive case finding in that city revealed an average of 21 new cases a year; and that in 1950 there were 84 known old cases at large, refractory to medical suggestion and capable of infecting others with tuberculosis. Three out of four of them had been hospitalized at one time and had either signed out of the institution against medical advice or had been discharged for disciplinary reasons. Nine individuals in 1947 and 15 others in 1950 undoubtedly contracted their infection from these recalcitrants.

Anderson and Blomquist[2] have recently analyzed the reasons for our failure to deal effectively with this factor of what might be called "residual tuberculosis." They point out that, in spite of the notable achievement of eliminating (in many areas) the means-test for admission to tuberculosis hospitals, and in spite of the fact that medical social workers are employed in many such hospitals, there are many serious gaps in our present machinery of control. Within the health depart-

ment itself, the divisions of tuberculosis and of nursing are not always coördinated. Frequently "the health officer or tuberculosis officer has no part in hospital admissions and discharges, although he should be in the best position to know who needs hospitalization and what priority would contribute most to the public health." Most serious of all is the gap between both the health officer and the sanatorium on one side and the social agencies which can contribute so much to our control efforts on the other. Anderson and Blomquist point out that:

> We all remember instances where we attempted to use these agencies and were disappointed because patients did not receive the services we had hoped for, and it is equally true that agencies are frequently hamstrung by appropriations which are pathetically inadequate for community needs. But it is also true that we health workers often do not realistically interpret patients' problems to the agency and do not interpret the agencies to our patients so they can use the agencies effectively. It is essential that in the future we work for more coordinated planning between health and welfare agencies if we are to get the most from our community resources. . . . In a chronic, recrudescent disease like tuberculosis, it is particularly important that we think of the total needs for control in terms of the total needs of the individual patient. Certainly, a hospital bed is essential for every case of active tuberculosis. But the provision of hospitals alone is not enough. We must help patients so that they will want to stay in the hospital until they are restored to health and prepared to remain well. Adequate financial assistance will provide support for wives and children and will help fathers to remain in the sanatorium. In like manner, the provision of a housekeeper could keep a family intact, and thus prevent a mother from leaving the sanatorium too soon. And if the provision of social case-work services and necessary vocational rehabilitation and educational services during and after a patient's stay in a tuberculosis hospital will assure his remaining well after his discharge, these services should certainly be provided in order—at the very least—to protect the community's investment in that patient's restoration. In other words, the patient's specific needs must be determined and community resources called upon in an orderly fashion to satisfy these needs directly and promptly. This can come about only through joint consultation, planning, and effort on the part of all the agencies and organizations within a community prepared to meet these needs.

As Dr. J. W. Mountin has said,[3] "In recent years we have been witnessing a steady broadening of the horizons of public health. The emphasis has shifted, to a great extent, from the microbiological effects of disease to the study of man in his socioeconomic setting. . . . Adequate tuberculosis control requires the whole gamut of psychological, social, and economic, as well as medical services." Tuberculosis workers (and we would add health officers) must "take an essential role not only in stimulating the development of necessary services but in spearheading the movement toward an *integrated* approach in every community. They must draw upon all the agencies, public and private, medical and social, economic and occupational, in building a strong control program."

All this is sound as applied to tuberculosis. It is equally sound as applied to chronic diseases, to the diseases of an aging population, to emotional disorders of varied types. If we are to accomplish the results at which we aim, the outmoded boundaries between health work and social work must somehow be broken down. For the last three years, members of these allied professions have been working on a survey in St. Paul, Minn., under the auspices of Community Research Associates, which has clearly indicated the vital importance of a joint attack upon the indivisible common problems of public health and social welfare. When it is discovered that 6 per cent of the families in St. Paul are consuming 46 per cent of the community's organized health services, 55 per cent of its adjustment services, and 68 per cent of its dependency services, it seems time to sit up and take notice.

We expect to present some of the St. Paul findings in a later issue of this

JOURNAL; and hope that our readers may be convinced that the time has gone by for water-tight—or thought-tight—compartments in community service. Public health and public welfare are, after all, techniques, and not objectives in themselves. The objective is that family on the fourth floor of the tenement on X street—a family which needs the intelligently coördinated assistance of every agency, public or private, which can play a part in attaining the fulfillment of our ideals of American citizenship.

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1. Johnson, R. D. Unruly Patient Problem Reviewed. *Bull. Natl. Tuberculosis Assn.* 37:23 (Feb.), 1951.
2. Anderson, R. J., and Blomquist, E. T. Tuberculosis Control: A Total Program. *Pub. Health Rep.* 66:132–138 (Feb. 2), 1951.
3. Mountin, J. W. An Opportunity for Leadership (Editorial). *Pub. Health Rep.* 66:129–131 (Feb. 2), 1951.

Credit Lines

PERMANENTE HEALTH PLAN

Planning for Health, the quarterly bulletin of the Permanente Health Plan, was reborn with a spring issue, 1951. Its reappearance emphasizes the growth of this West Coast medical care program. Starting as a program of medical care for shipyard workers in the Kaiser Yards during the second World War, it was an essential part of the plan for maintaining production levels.

Today it is an independently established, voluntary, non-profit prepayment plan available to the general community. The Plan is attempting to demonstrate that group practice in medical centers financed under prepayment arrangements can provide a high quality of medical care to the general population, and that such services can be adequately financed through the group insurance method.

The Permanente Foundation owns and operates the hospitals and health centers. The Permanente Medical Group is made up of physicians organized into an independent partnership. The Health Plan contracts with the hospital and with the Medical Group for the provision of health services to members. The medical director is E. Richard Weinerman, M.D.

Among recent activities of Permanente has been the plan worked out with the International Longshoremen's and Warehousemen's Union, with which it has a medical care contract financed jointly by the employers and the union. It seemed a good idea to examine and catch diseases in the early stages, before intensive—and expensive—medical and hospital care were indicated. Hence, members of the union were examined—but after a period of careful publicity and the development of community coöperation. The San Francisco Tuberculosis Society provided the chest x-rays, the State College an audiometer operator, the University of California School of Public Health provided laboratory service, and the State Division of Vocational Rehabilitation its services.

EXPERIMENT IN HEALTH MAINTENANCE

First announced at its annual meeting in 1948, the Community Service Society of New York early in 1951 began its Family Health Maintenance Demonstration, in which Montefiore Hospital and the Columbia University College of Physicians and Surgeons are coöperating. The first family, of no more than 20 families at the outset, arrived at the Montefiore Hospital for examinations and interviews designed to maintain the health of the family group rather than to cure disease. The families are being selected from 4,000 enrolled in the Health Insurance Plan of New York and served by Montefiore Hospital's Group Practice Unit.

The demonstration is an outgrowth of the Community Service Society's experience in assisting families whose problems were found rooted in sickness and disability that might have been prevented. Its sponsors regard it as a new chapter in medical history, the success of which may revolutionize practice in this country.

NOW IS THE TIME FOR SIGHT SAVING

September is Sight Saving Month, says the National Society for the Prevention of Blindness. To initiate it and its reason for being, namely, an intensified sight saving campaign, the

Society has just published "Sight Saving Facts." It gives a number of answers to the question "How Can We Prevent Blindness?"—emphasizing that at least 50 per cent of blindness need not be. 1790 Broadway, New York 19.

WEIGHT REDUCTION PROJECT

The Metropolitan Life Insurance Company has undertaken to persuade the 25 million adult Americans who are overweight to lose excess poundage through intelligent dieting under medical supervision. Its purpose is to improve general health by reducing those disorders that are most prevalent among overweight persons. Both approval and active support are being given to the campaign by three national agencies also concerned with the disorders of the overweight—the American Heart Association, the American Diabetes Association, and the American Dietetic Association.

Among the media used for this campaign is an eight minute animated film for theater use, "Cheers for Chubby," which is being offered without charge to theaters throughout the country. Further, the booklet *Overweight and Underweight* is being widely distributed to the public. Metropolitan Life Insurance Co., One Madison Avenue, New York City.

GRAPHIC STORY OF NURSE SHORTAGE

In the May-June bulletin of the Wisconsin State Board of Health, Janet Jennings, the Board's director of public health nursing, writes "The Public Health Nursing Picture of 1951." Chiefly interesting are the two maps of Wisconsin, one showing the number of public health nurses employed for rural health work in each county, one showing the number conservatively estimated as needed. The number employed in all counties is 116, the number needed, 326. Thus it is possible for each rural Wisconsan to see how he stands, and to see that generally he gets only one-third or one-half of what he needs.

Miss Jennings is arguing for a streamlining of programs, for making services elastic, and for other techniques that the nursing group can use to make the available staff go as far as possible. But unconsciously she argues also for county health departments, as witness, "Young nurses finishing the public health course naturally gravitate to the county or city agency where qualified supervision can be had. Thus it should be easier to obtain nursing staff when more county health departments are established. . . . Health agencies in large communities find their vacancies more easily filled where a sizable staff is employed."

NUTRITION AIDS, PARTICULARLY MILK

Last October the National Dairy Council (111 N. Canal St., Chicago 6) produced two new nutrition teaching aids. *Safe Milk: Its Importance to the Public Health* reviews chiefly the story of pasteurization and its relation to the milk-borne diseases. *Nutrition for Every Day Use: A Handbook of Teaching Aids* outlines the familiar basic seven in terms of Mrs. James and the meal planning for her family of four.

In April, the Council produced four more pamphlets. *Eating Is for Everybody* and *An Inside Story of You and Your Food* are again about all the basic foods. *Accent on Ice Cream* and *Dairy Foods for Everyone* put the accent on milk. All of these are interestingly developed as teaching aids. The Council's catalogue of Health Education Materials, including visual aids, is available. Single copies of these pamphlets free; quantity prices on request.

WORTH ACQUIRING

Legal Status of the American Family, prepared by the Women's Bureau of the U. S. Department of Labor, might well be on the desk of the public health worker. Prepared from materials used

at the 1948 National Conference on Family Life, it summarizes the bare essentials of laws governing family relationships in this country. Government Printing Office, Washington, D. C., 15¢. One-fourth reduction for 100 or more.

Report of Local Public Health Resources, 1949, by the U. S. Public Health Service, is an analysis of public health personnel, facilities, and services in local areas, based on information reported by local health departments receiving state or federal assistance. Its material tells a good deal about how far we are toward the "goal of all public health officials—complete coverage of the entire nation by full-time local health organizations staffed and equipped to provide well rounded public health services to all the people." It also has something to say quantitatively, and perhaps by implication qualitatively, as to the relative service afforded by state health districts giving direct services and local full-time health jurisdictions. In the former there is roughly one worker per 7,300 population; in the latter, one for 3,200 ranging from 2,600 in city departments to 4,700 in local health districts.

Available from the U. S. Public Health Service, Washington 25, D. C.

Tested School and Community Breakfast Program Activities has been prepared as a teacher's source book by the Cereal Institute. It is a compilation of some of the most popular activities that have been used successfully by home economists to dramatize better breakfasts. Home, school, and community activities are illustrated with actual life situations. There are numerous photographs and drawings. A valuable help wherever good breakfast programs are being planned. Cereal Institute, 135 So. LaSalle St., Chicago 3.

ANNUAL REPORTS

First Annual Report of the Griffin-Spalding County Health Department and *Pattern of Public Health* (Lamar County) are the annual reports of two of the counties in a tri-county health unit in Georgia, the third county not yet having issued a report.

In many ways the two reports are their own argument for separate reports, even though the consolidated services are fairly extensive, particularly in the field of supervision. The Spalding County report is made up of a series of blueprint pages and the report is developed throughout in blueprint technique. The result is a considerable amount of information in small and readable compass. The Lamar County report carries out the theme of a pattern, with the seven pieces of a blouse representing the seven traditional functions of a health department (school health being the seventh).

We are told that the next annual report will be for the consolidated unit. That, too, has its advantages in making the overall picture clearer and as a symbol that coöperation is real and not merely theoretical.

The health officer of this unit is John H. Venable, M.D. He and his staff are to be congratulated on these two interesting reports that ought to go far toward making Spalding and Lamar County citizens feel that their health department is a part of their daily lives.

Your Pennies at Work is the 1950 annual report of the Chattanooga—Hamilton County (Tenn.) Health Department. The theme is carried throughout the report, which is brief and is extensively illustrated with photographs of actual health department activities. A few of the subject titles are: "Some Pennies Count," "Pennies Follow Nurses Every Day," "Pennies Take Chest X-Rays," "Sanitation Pennies," and finally, "Too Few Pennies." "No Pennies Needed for Food Handlers—Barbers, nor Typhus" introduces the fact that

fees for examination pay for the former, and that owners pay for the ratproofing service provided by the health department. Paul M. Golley, M.D., is the health officer of this city-county department serving about 207,000 persons.

Health Hazards 1950 is the 1950 annual report of the Buffalo-Erie County (N.Y.) Department of Health. This is the report of the second year of operation of this combined city-county health department, serving nearly a million persons in an area of some 1,000 square miles. The report is well organized, gives a wealth of information, is illustrated with both photographs and line drawings, and is bound in convenient loose-leaf form. The photography generally could be less blurred, and the inquisitive statistician will wonder what is signified in the slight differences between the expenditure figures shown in the body of the report and in a mimeographed statistical supplement accompanying it.

First Annual Report, 1950, District Health Department is the report of a four county health department in North Carolina serving somewhat more than 50,000 persons. The counties are Camden, Chowan, Pasquotank, and Perquimans. The first unique thing about this report is that it is a report of the consolidated district. Too often, when it comes to making annual reports, each unit of a consolidated district goes its own way, and the reports hardly hint at any coöperation. But these counties have a long history of consolidation. Three of them have been in harness together since 1943, and the fourth joined in 1949, adding nearly a fourth of the present population. Hence, this "first report."

The report itself is short, informative and illustrated with photographs. One suggestion—the state in which the health unit is located should be more obvious than it is in this report. Outside of North Carolina placing Pasquotank and Perquimans Counties in their proper state would rate as esoteric information.

You Are a Shareholder is the 1950 annual report of the Tompkins County (N. Y.) Department of Health. This department was one of the earliest to be organized under the present state-aid law of the state, which puts a premium on county health departments that serve the entire county. Hence, the report is chiefly a comparison of the extent of services provided to the county's 60,000 citizens in 1946 and in 1950. It's a telling argument for the many New York counties that still depend on the District Service of the State Health Department to meet all their needs. The report is brief and is simply written and illustrated. The health officer is Dr. William C. Spring, Jr.; headquarters are in Ithaca.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Somatic Development of Adolescent Boys—*By Herbert Rowell Stolz and Lois Meek Stolz. New York: Macmillan,* 1951. 557 pp. Price, $9.00.

This volume reports the authors' findings and conclusions based upon repeated observations of 67 boys for seven years, beginning at ages between 9½ and 12½ years. The data presented on these boys are primarily anthropometric and photographic, but include tests of muscle strength and detailed studies of sex characters. These have been obtained on each individual every six months and are presented in tables, distributions and charts of plotted increments. The most unique material presented consists of the exceptionally good photographs both of individuals as a whole, and of the developments in the pubic area. The last chapter relates the somatic development of one boy, period by period, to his social and adaptive behavior.

In the main, the conclusions of the authors regarding the periods of accelerating, maximum, decelerating and terminal slow growth, and the age and intensity variations among individuals in these respects, are in accordance with previous studies and generally accepted principles. The authors have attempted to analyze the charts of incremental growth for different measurements in a very detailed manner and have described minor rhythms and segmental differences which can hardly be accepted as established normal patterns of growth on these data alone. For students of child development involved in basic research, the latter studies will be of special interest. For practising physicians and any professional workers with adolescent boys, the supporting evidences presented for the wide individual differences in the ages at which the succeeding phases of orderly development occur during adolescence are worthy of careful study. However, it is the reviewer's belief that detailed study of the minor changes in the rates of progress in different measurements might be confusing and would not be helpful for practical purposes, owing to lack of knowledge regarding the health significance of these variations.

HAROLD C. STUART

Water Quality and Treatment—*American Water Works Association (2nd ed.). New York: A.W.W.A.,* 1950. 451 pp. Price, $5.00.

This is a worthy successor to the first edition of this manual, published in 1940. The new edition has been prepared, as was the first one, by a committee of distinguished members of the American Water Works Association. The material presented is a considerable expansion over the first edition and several new chapters have been added. The 443 pages of this book are divided into seventeen chapters and four appendices. Each of the chapters is followed by a comprehensive list of references. One appendix of particular note entitled, "The Water Supply Library," consists of seven pages of references, arranged by category, e.g., "Water Supply and Treatment," with subheadings such as "Aquatic Life," "Bacterial and Chemical Analyses," "Water Works Operation," etc.

This manual represents the best thinking of experts in the water works field. Chapters dealing with "Standards of Quality" and "Chemical Treatment of Water for Physiological Benefits" (in-

cluding fluoridation) are outstanding. Although the book contains a comprehensive coverage of the subject of water supply, the text obviously makes no attempt, in most cases, to give an exhaustive treatment of each subject, but rather presents a limited though reasonably complete review of each subject. In some instances a more detailed coverage would have been desirable. The nine page index might well have been expanded.

This book has no real counterpart in water works literature and unquestionably would be a valuable addition to the library of any person interested in the water works field. E. A. REINKE

Your Health—*By Dean Franklin Smiley and Adrian Gordon Gould. New York: Macmillan,* 1951. 555 pp. Price, $4.50.

Teachers acquainted with the work of Smiley and Gould will welcome another book from these well known writers. *Your Health* is the expression of many years of experience in the field of health education. Dr. Oliver Wendell Holmes would have liked this book. He felt that knowledge, like timber, should be well seasoned before it is used. The factual material includes the new knowledge in hygiene and, while scientific in content, is presented in a style that is easy to read and understand. The book is well written.

Your Health deals with the important aspects of personal hygiene as well as including certain considerations of community health, especially as it affects the student after graduation. Many of the subjects discussed will be of interest to older persons as well as college students.

While the book follows the popular plan of organizing the material around the body systems, there is a distinctly modern functional approach to the subject with many interesting chapter headings. The discussion is generally limited to the more pertinent facts. The difficult subjects of sex education and the use of tobacco and alcohol are especially well presented.

The book is characterized by a number of admirable educational features, including a quotation and a few stimulating questions at the beginning of each chapter, a fine glossary of technical terms, an up-to-date list of sources of motion pictures on health subjects, an adequate bibliography and references at the end of each chapter, and many well chosen illustrations.

Teachers and others interested in better and more efficient living will be pleased with *Your Health*. It will make a real contribution to that end.

W. R. MORRISON

A Study of Combination Services in Public Health Nursing—*By Dorothy Rusby. New York: The National Organization for Public Health Nursing,* 1950. 55 pp. Price, $1.25.

Those interested in experiments carried out to make "every dollar available for public health nursing . . . be spent as effectively as possible" will want to read this report. It is a descriptive, analytical study of five communities where governmental and voluntary public health nursing staffs have been pooled to give a generalized nursing service, "jointly administered" and "financed by tax funds, earnings, and contributions."

Initial data for the study were received from questionnaires. Field visits followed, during which such materials as board minutes, family records, and manuals were examined, and "individual and group conferences were held with nursing directors and supervisors, staff nurses, medical directors, board members, and representatives of community planning groups."

Data are presented under such headings as Financial Arrangements, Administration, Service Program, and Public Relations. Where available, statistical

data are used—some to show such comparisons as changes in service or financial support before and after the combined service was established, and others to illustrate points brought out in the text. Throughout the report weaknesses and strengths are highlighted; and problems, solved and unsolved, are pointed up.

Four services, where established voluntary agencies joined with the Department of Health nursing service, are treated together. The fifth, where a newly organized visiting nurse association combined with a city-county health department, is treated separately. A final section states principles for developing and administering combination services. These principles, which reflect the findings of the *Study*, have been approved by the Committee on Administration of Nursing Service of the N.O.P.H.N.

Limits of the *Study* are recognized. The sponsors, had funds been available, would have studied the forty-odd such services in the country, and might have attempted a qualitative, as well as a descriptive study. In spite of these limits, the report is a valuable guide to reappraisal of programs of community nursing services and to any plans for development of further experiments in combined services. DOROTHY WILSON

Immunology—*By Nobel Pierce Sherwood (3rd ed.). St. Louis: Mosby,* 1951. 731 pp. Price, $8.00.

This is the third edition of what has become a useful and authoritative textbook on immunology. The significant changes incorporated in this new edition are the addition of a chapter dealing with the Rh factors and numerous changes throughout the text to incorporate facts and concepts developed during the decade since the second edition appeared.

The emphasis in this, as in previous editions, is directed toward fundamental immunological principles and concepts. The essential fields of immunology as currently recognized are presented in a clear, concise form. The author references are especially noteworthy, so that the book serves as a useful storehouse of references to the original literature. The excellent practice of detailed statement of contents used in previous editions is retained, and the author and subject indexes are especially good.

This book can be recommended as a useful addition to the public health library for all those workers having any interest in keeping abreast of modern concepts in the field of immunology. It is particularly valuable for those in the fields of epidemiology and the public health laboratory.

The printing, binding, and general format retain the high level of excellence of the previous editions.

M. H. MERRILL

Virus and Rickettsial Diseases—*By S. P. Bedson, A. W. Downie, F. O. MacCallum, and C. H. Stuart-Harris. Baltimore: Williams & Wilkins,* 1950. 383 pp., 33 figures. Price, $5.50.

The primary aim of this book is to present a coherent, readable account of virus and rickettsial diseases to physicians and others not directly concerned with virus problems. Following some general considerations of viruses, individual diseases are taken up from the etiological viewpoint. Space devoted to each disease is determined by knowledge of the causal agent rather than by the importance of the disease. Clinical descriptions of disease are brief. Stress is placed on the characteristics of the virus, diagnostic aids which the laboratory can supply to the clinician, and epidemiology, where increased knowledge has indicated measures of practical importance. A chapter on bacteriophage is included because the bacterial viruses have a bearing on problems concerning animal viruses.

As in almost any work which represents a condensation of much data, some facts are omitted or unduly emphasized. For example, rickettsiae are described as extremely labile organisms. Mention is not made that the rickettsia of Q fever is an exception. Also it seems somewhat premature to classify the agents of infective and homologous serum hepatitis as A and B.

In general the presentation is pleasing, but there are passages, such as on page 14, where the involved literary style tends to obscure the meaning. The flaws are minor, however, when compared to the merits. A wealth of pertinent, well organized information makes this book especially valuable to all who seek a broad view of the virus field. The index is adequate; the illustrations are well chosen and clearly reproduced. References at the end of each chapter invite further study.

BERNICE EDDY

Yellow Fever—*Edited by George K. Strode. New York: McGraw-Hill,* 1951. 710 pp. Price, $9.50.

This is a *great book,* which memorializes great deeds and great men.

It is a report of stewardship. Some 30 years ago the International Health Division of the Rockefeller Foundation assigned itself an overwhelming task—the conquest of yellow fever. This idea originated in the mind of its brilliant director, Wickliffe Rose, and the Rockefeller Foundation Yellow Fever Commission was organized by him, under General Gorgas in 1916. The work of the Foundation in the field of yellow fever control has continued unremittingly down to the present day.

This remarkable volume of over 700 pages is a summary of the results that were achieved by the Foundation staff in its researches on yellow fever, in the laboratory and in the field.

Dr. Strode has edited this report, which consists of 10 sections as follows: Introduction, by A. J. Warren; The Virus, by Max Theiler; Pathology, and a section on the Mammalian Host, by J. C. Bugher; Arthropod Vectors, by Loring Whitman; Clinical Aspects, by J. A. Kerr; Epidemiology, by R. M. Taylor; Control, by H. H. Smith; and Costs and Manpower, by the editor, Dr. Strode.

Each of these men has written from the depths of personal experience, for each played a key role in the development of the whole plan. The story is told in a simple, straightforward way. As it unfolds, it becomes an epic of modern medical history.

Though not directly expressed nor even mentioned in the report, one finds between the lines the deep significance of fortitude, dogged courage, imagination, self-sacrifice, determination in the face of disaster, and true heroism. The final results of this great effort are known to the whole world. Never has there been such a concerted, driving, relentless unabated scientific effort which was centered on solving the mysteries of the epidemiology of a single disease entity. Never have there been greater obstacles or greater discouragements. The man power years of scientific effort that were expended, the millions of dollars that were used, the lives that were lost, are all set forth in this report as a simple matter of record and documentation.

One wishes that we were told a little more, perhaps, about the men who sacrificed their lives so gallantly in this struggle—Cross, Stokes, Noguchi, Paul Lewis, William Young, Ted Hayne; we who saw them die so quickly and in such rapid succession from the ravages of the disease that they had attacked sometimes feel that they should be memorialized in some modest way, in stone or in story. The tragedy of their loss is, in this report, a simple part of the documentation of the volume. Perhaps this is as it should be. Some day a great dramatist will tell of their lives and deeds.

The text is beautifully illustrated, well

indexed, and has a complete bibliography of yellow fever control throughout the world during the past 30 years. It is a great book.

WILSON G. SMILLIE

Textbook of Medicine—*Edited by Russell L. Cecil and Robert F. Loeb (8th ed.). Philadelphia: Saunders,* 1951. 1627 pp. Price, $12.00.

This well established single-volume text in medicine is edited by the Professor of Clinical Medicine Emeritus of Cornell Medical College, and for this edition Dr. Cecil has been joined by Dr. Loeb, Bard Professor of Medicine at Columbia University, New York. The text consists of several hundred signed articles by 168 contributors, representing a cross-section of the best which American medicine offers.

For those from the public health field it will be interesting to note that in the first 600 pages, among 169 articles, 79 have been prepared by persons identified with the American Public Health Association. The growing importance of the viral diseases and those due to rickettsia, the mycoses, and the protozoan and metazoan infections, together with the deficiency diseases, creates an important common ground between public health practitioners and internists. This represents a wholesome development.

This eighth edition has well written articles on Q fever, rickettsialpox, pinta, beryllium poisoning, toxemia of pregnancy, and a dozen other new sections. These portions and the rest of the text are up to date and authoritative. The authors are to be congratulated on their production, which in a special way makes an excellent book of reference for the health department library.

REGINALD M. ATWATER

Administrative Medicine—*Edited by Haven Emerson. New York: Thomas Nelson,* 1951. 1007 pp. Price, $10.00.

This volume consists of the sections of the *Nelson Loose-Leaf Medicine* dealing with those activities in the application of the medical sciences "which involve a number of persons related to each other by authorized organization, be it institution or agency, for the delivery of service to individuals and groups, or to whole communities or national populations." In the republication in one volume, extensive revision is claimed.

The book is divided into three parts: The Organized Care of the Sick, Administration and Economics of Medical Care, and Public Health Administration Organization. The 55 chapters have been written by 58 contributors (although the dust jacket modestly claims only 57). Encyclopedic in its character, the content reveals the uneven topography common to books made up of many individual contributions. In several chapters the bibliography contains no references more recent than 1939. In others, the entire matter consists of the historical development of the theme, with little critical analysis of modern ideals and methods. In still others, there is brilliant treatment.

Parenthetically, it is noteworthy that 40 of the 58 contributors are located in the area bound by Boston and Washington, Albany and the Atlantic Ocean. This perhaps explains why some of the discussions seem to have a constricted application.

Possible specific criticisms only point out the complexity of subject contained. As the hallmark of a good book, it is obviously provocative. It is by no means a handbook. It weighs five pounds and can be read easily only at a desk. But for one newly arrived in the field of administrative medicine, or even more certainly, for that fortunate laborer who finds sabbatical minutes within which to contemplate the perspective of the vineyard, there is here a very great deal to acquaint him with the work beyond his row and to stimulate him in his own

confine. As a resource and reference book, it deserves a place even on the shorter discriminating bookshelves.

JOHN D. PORTERFIELD

Enterobacteriaceae—*By F. Kauffmann. Copenhagen: Ejnar Munksgaard,* 1951. 338 pp. Price, $7.50.

Unlike its predecessor, *Die Bakteriologie der Salmonella-Gruppe,* by the same author (1941), this volume is written in English. It is like the first volume in that it summarizes the great amount of work on the intestinal bacteria that has been carried out not only in the Statens Seruminstitut in Copenhagen, but also throughout the world. As the name indicates, the serological studies that were largely initiated by Professor Kauffmann and Mr. Bruce White 15 to 20 years ago have now been developed to cover other groups than *Salmonella* in the family *Enterobacteriaceae.*

The studies made during the war by Professor Kauffmann in neutral Sweden have been renewed since the end of the war at the Institut in Copenhagen. The newer investigations have developed our knowledge of the serological relationships of the *Escherichia, Aerobacter, Klebsiella, Proteus* and *Paracolobactrum* groups. All those who are concerned with the identification of intestinal bacteria will want to secure this authoritative book. ROBERT S. BREED

Biometric Analysis. An Introduction—*By Alan E. Treloar. Minneapolis: Burgess,* 1951. 251 pp. Price, $4.50.

This book should prove very interesting and useful to the increasing segment of the readers of this *Journal* who have at least some knowledge of quantitative methods in biology, medicine, and public health. It can be used profitably to supplement the statistical techniques acquired from practical experience or from an elementary course in a school of public health. A novice in the field, however, will have to exert considerable effort and make a serious study of the text to derive the greatest benefit from it.

Granting a certain familiarity with the field, the reader will be delighted with the reasoning processes by means of which are developed such statistical tools as variation, correlation coefficient, and the chi-Square criterion for goodness of fit, as well as with the ingenious derivation of certain necessary formulae without resorting to involved algebra. The book is, in a sense, an experimental revision of a previous book by the same author, *Elements of Statistical Reasoning,* and is a considerable improvement over the original text. The order of presentation of material and the chapter arrangement are much more conducive to smoothness and continuity of thought. Many chapters have been greatly enlarged, and discussions on the small sample t-test are included. This is a definite improvement and a recognition of the needs of students of the biological sciences. Workers in public health will welcome the excellent background provided for the study of proportions by the use of the more common vital statistics rates.

The order of presentation of the different topics in such a text is obviously a debatable matter. Some, including this reviewer, prefer to have the chapters on probability and the binomial and Poisson distributions precede those on the normal distribution and tests of significance, and to introduce regression ahead of correlation. The concepts of probability and hypotheses-testing are not given the same closely knit treatment which the author gave so successfully to the other topics. There may be a question, also, whether the treatment of small sample techniques as addenda to the different chapters, with concomitant complication of notation such as s_x^2 and $\tilde{s}_x^2$, may not lead to some confusion. These comments,

however, refer mainly to the use of the book as a text in elementary statistics rather than to the usefulness of the book to the readers of this *Journal*, many of whom have already been initiated in the subject and should find it an excellent source for further education.

J. YERUSHALMY

Marriage Analysis—Foundations for Successful Family Living—*By Harold T. Christensen. New York: Ronald Press*, 1950. 510 pp. Price, $4.50.

This book is an attempt at a systematic analysis of marriage and its core problems. It is based upon material prepared for the use of his students by the professor in the Department of Family Life at Purdue University. The author states that it is his "reasoned conviction that marriage and family life are good, that they are productive of things worth while."

The book is in four parts. Part I provides introductory material for general orientation. Part II deals with the basic elements of marriage, such as personality background, sex, and the role of society itself. In this connection it is stated, "The answer to family failure is better marriage, which depends upon better adjusted individuals, which in turn depends upon a better integrated and compatible social and cultural environment." Part III discusses processes in marriage and family life from learning to love, transition into marriage and parenthood, even to living without a mate. Part IV presents a brief discussion of some of the organized and purposeful programs aimed toward the improvement of marriage, such as education, counseling, religion, and research.

The style is that of a textbook. Student and teacher aids are provided at the end of each chapter. The discussion is replete with references to the literature and a list of selected further readings is appended to each chapter.

There is increasing recognition among health workers of the importance of the interrelationships between marriage and family life on the one hand and health status on the other. This book is one of a number which provide a review of the present state of knowledge regarding marriage and family living. Unfortunately it is not one of the best of such introductory works. There are points in the book at which critical analysis and scientific validation for the judgment expressed is lacking and where, instead, there is provided a rationalization of our present mores.

CECIL G. SHEPS

Education for Responsible Parenthood—*Raleigh, N. C.: Health Publications Institute, Inc.*, 1950. 80 pp. Price, $.75.

This is a little book but it calls for a full-sized review. Designed as a study guide for group discussions of family life education, it meets a twofold purpose: to suggest "core materials" which may be incorporated in such programs, and to orient group leaders. The integration of purposes, materials, and attitudes pays tribute to the many individuals and organizations who have been doing the spadework prerequisite to this publication.

In stressing the group approach, it is perhaps in the second part of the book, the leaders' manual, that this work makes its greatest contribution. Through successful orientation of the leadership for such programs can come the increased success of the groups, which in turn makes for a widened base of leadership within the community.

The manual summarizes concisely some of the concepts of group-centered leadership, together with helpful attitudes and practical suggestions for conducting the meetings: necessary flexibility in planning the programs with the groups, the multiplicity of "roles" the leader must be prepared to play in start-

ing the group and in keeping it going, the truism that the leader must really "live" his interest in people and not merely "play a role." The specific techniques, outlines, and agenda are proposed only as suggestions, and many alternative procedures are offered, as in the two procedural outlines for an adult group and a youth group respectively. Readings and films are correlated with various aspects of the topics.

The first section of the book contains "background readings" for possible use after the groups get under way. These are short, readable essays dealing with emotional growth, physiological developments and differences, social growth, and the directing of emotional energies toward positive ends. This last note, the positive approach to emotions, epitomizes the attitudes contributing to this work; the approach suggests no fascination with negativities, bugbears, and "problems," but emphasizes instead constructive maturity in family and community relations.

Special notice should be given to the annotated bibliography of source materials which also specifies where they are available; this includes books, pamphlets, films, film strips, and transcriptions. Supplements include a vocabulary list, questions on parenthood that might be asked by children of various groups, and suggested answers appropriate to that age level.

Altogether this would seem a useful and practical booklet for those interested in any kind of community work. The content seems sound and applicable, the format is good, the illustrations are attractive and pertinent, and the price is low enough to afford wide distribution.

JESSIE M. BIERMAN

Children in the Family—Rivals and Friends—*By Edith G. Neisser. Ruth Cunningham, Editor. New York: Bureau of Publications, Teachers College, Columbia University,* 1951. 60 pp. Price, single copy, $.60.

This bulletin is part of the Columbia University Parent-Teacher Series intended for both parents and teachers. Miss Neisser has written a very readable account of the problem of rivalry between brothers and sisters and gives many practical and helpful suggestions on keeping the various situations within bounds and minimizing harmful effects. The forthright and realistic manner of presentation is welcome and has convinced this reader that it is based on a thorough familiarity with the feelings of children. The text is completely free from the bathos which sometimes creeps into works of this kind, and the illustrations by Ruth Allcott are amusing as well as highly pertinent.

This volume is a real contribution toward the application of current psychological knowledge to real situations in both home and school.

EDWARD DAVENS

Tuberculosis Among Children and Adults—*By J. Arthur Myers (3rd ed.). Springfield, Ill.: Thomas,* 1951. 894 pp. Price, $12.50.

Although this volume treats tuberculosis comprehensively, Dr. Myers's main purpose appears to be: (1) to stress the value of routine tuberculin testing; (2) to denounce BCG.

The author's thesis is that a positive tuberculin means primary tuberculosis with living tubercle bacilli in the body, that reinfection, or serious, tuberculosis occurs only in those who have had the primary lesion, and therefore that tuberculin testing at frequent intervals followed by interval chest x-raying of the positive reactors offers the one feasible means of discovering tuberculosis in its easy, curable stage. Whether the world, or even much of the United States, is ready for such a program is debatable, although most will agree that it is an ideal to aim at. Among the majority of

the world's population the amount of tuberculosis is so appallingly great that governments have not felt that the problem could be attacked in the way Dr. Myers suggests.

As to BCG, Dr. Myers contends that we do not have sufficient proof of its harmlessness to recommend it. Moreover, natural primary infection, having failed in the past to prevent reinfection tuberculosis, it is illogical, he feels, to expect artificially induced infection to do so. He discounts the statistics used to show the value of BCG in reducing tuberculosis mortality, stating that they do not represent controlled studies. Finally, he says the use of BCG destroys the value of the routine tuberculin test. It is true that zealots have overemphasized the immunizing value of BCG and that most of the claims for its efficacy have not been based on satisfactorily controlled work. However, evidence has shown its use to be safe and has shown it to be capable of initiating tubercle formation, and it is known that the allergy established by tubercle formation delays and may prevent the spread of tubercle bacilli throughout the body. The logic, therefore, is not wholly on Dr. Myers's side.

This reviewer has the impression that the book is unnecessarily long. It contains many repetitions. Parts I, II and III are largely a reprint of the second edition of this work, published in 1938 under the title, *Tuberculosis Among Children and Young Adults*. Few of the references in these sections are to publications dated later than 1937. Part IV, titled "Recent Progress in Tuberculosis Control" and covering about 500 pages, contains much that is encouraging and helpful to physicians and health officers. Here the author discusses tuberculin and photofluographic surveys, control of tuberculosis at different ages, tuberculosis and war, and outlines modern therapy, including the use of antibiotics. A number of chest surgeons from western and central parts of the United States contribute chapters on surgical treatment. Psychiatric help for the tuberculous is not discussed.

The book is well printed. There are but few typographical errors. The reproduction of films, on the whole, is excellent. Some of these are antero-posterior, some postero-anterior, and one is upside down.

Regardless of the author's viewpoint, the present work can be recommended. It will be especially useful to those who work in areas where tuberculosis infection is uncommon and who are aiming directly at the elimination rather than the control of tuberculosis.

JOHN H. KORNS

Public Health Areas and Hospital Facilities—*By Joseph W. Mountin and Clifford H. Greve. P. H. S. Publication 42, Federal Security Agency. Washington: Govt. Ptg. Office,* 1950. 119 pp. Price, $.60.

If it had not been for the ineptness of the public release of this valuable study, without prior review and agreement from the state health officers, or at least some prewarning to them of the suggested state patterns thus officially and federally publicized, its initial reception by the public health profession would have been more friendly.

The conception of close collaboration between community facilities for care of the individual patient, for the diagnosis and better management of personal health and of disease, and the functions and authorized duties of the local health department which apply to the promotion and preservation of the health of the community is sound and everywhere makes progress through the force of logical economics and efficiencies. The present abundantly documented pattern for each state and every county is full of carefully analyzed data not elsewhere so conveniently presented and accessible for state-wide and local study.

Disclaimer of any desire or intent to fix the map of future health department and hospital organization and location is written clearly in the introductory and subsequent text; for example:

> It does not constitute a mandatory blueprint nor does it necessarily express the point of view of the State authorities involved. Because it was evolved from economic and sociological data and was not verified by actual administrative experience, no finality can be claimed for the study.
>
> Where changing conditions or where particular local situations unknown to the authors demand certain modifications, these should, of course, be considered in planning a coordinated system of health service areas.
>
> This study, in other words, should be regarded as a point of departure and guide for future development, rather than the last word on the formation of integrated and comprehensive health service areas.

Again and again coöperation and coördination are stressed, the pooling of resources of equipment and personnel and the avoidance of wasteful duplication of professional and institutional services are noted as benefits to be expected without entailing unified administration or location of headquarters for the sick and for preventive services for the community.

While inflation has made all public as well as private expenses appear to be extravagant, the recommended $1.78 per capita as a national average for local health services will alarm many a county and state appropriating authority, though well justified by calculable benefits if thriftily applied.

The figure of 1,228 local health units proposed is quite consistent with previous estimates of needs for total national coverage. The ratios of four essential categories of personnel are conservative, based on estimates currently accepted. The nine pages of text are followed by 110 pages of tabular matter and maps and appropriate data by states for each of the recommended areas of service.

This report should encourage sound planning in the hospital field and challenge state health officers to declare their own programs for local jurisdictions for public health. HAVEN EMERSON

Learning To Look and Listen—*By Eleanor C. Ronnei. New York: Bureau of Publications, Teachers College, Columbia University,* 1951. 180 pp. Price, $3.50.

This volume, published for the New York League for the Hard of Hearing, consists of listening lessons for children six, seven, and eight years old who are learning to use hearing aids. The volume points out that when the hard of hearing child has been fitted with a suitable hearing aid, his problems of communication have ordinarily been only partially solved. He must still learn how to hear with the hearing aid. Without careful guidance the child is only bombarded with a complex, even though amplified, pattern of sounds which he cannot analyze and which do not make sense.

This is a well prepared manual that will be of interest to teachers and nurses concerned with the hearing problems of young children.

REGINALD M. ATWATER

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ALCOHOLISM AND SOCIAL STABILITY. Robert Straus and S. D. Bacon. New Haven, Conn.: Hillhouse Press, 1951. 30 pp. Price, $.50.

CONSERVATION OF GROUND WATER. Harold E. Thomas. New York: McGraw-Hill, 1951. 321 pp. Price, $5.00.

CURRICULUM IN HEALTH AND PHYSICAL EDUCATION. Leslie W. Irwin (2nd ed.). St. Louis: Mosby, 1951. 369 pp. Price, $4.00.

EDUCATORS GUIDE TO FREE FILMS. Edited by Mary Foley Horkheimer and John W. Diffor (11th ed.). Randolph, Wis.: Educators Progress Service, 1951. 462 pp. Price, $6.00.

EDUCATORS GUIDE TO FREE SLIDEFILMS. Edited by Patricia A. Horkheimer and John W. Diffor (3rd ed.). Randolph, Wis.: Educators Progress Service, 1951. 151 pp. Price, $3.00.

ESSENTIALS OF PHARMACOLOGY AND MATERIA MEDICA FOR NURSES. Albert J. Gilbert and Selma Moody Brawner (3rd ed.). St. Louis: Mosby, 1951. 332 pp. Price, $3.75.

EVALUATION OF THE PELVIS IN OBSTETRICS, CLINICAL AND ROENTGENOLOGIC. Howard C. Moloy. Philadelphia: Saunders, 1951. 119 pp. Price, $2.50.

FROM A DOCTOR'S HEART. Eugene F. Snyder. New York: Philosophical Library, 1951. 251 pp. Price, $3.75.

HEALTH AND HUMAN RELATIONS IN GERMANY. Report of the Second Conference on Problems of Health and Human Relations in Germany, Williamsburg, Va., December 10–15, 1950. New York: Josiah Macy, Jr. Foundation, 1951. 30 pp.

HEALTH INSURANCE PLANS IN THE UNITED STATES. Report of the Committee on Labor and Public Welfare, United States Senate, Pursuant to S. Res. 273 and S. Res. 39. Report No. 359—Parts I, II, and III. Washington: Govt. Ptg. Office, 1951.

INSECT CONTROL BY CHEMICALS. A. W. A. Brown. New York: Wiley, 1951. 780 pp. Price, $12.50.

INTRODUCTION TO MODERN CHEMISTRY. P. C. Gaines, Laurence O. Binder, Jr., and Ray Woodriff. St. Louis: Mosby, 1951. 552 pp. Price, $4.75.

LOW-SODIUM DIET. A MANUAL FOR THE PATIENT. Thurman B. Rice. Philadelphia: Lea & Febiger, 1951. Price, $2.75.

MARRIAGE AND THE JEWISH TRADITION. Stanley R. Brav. New York: Philosophical Library, 1951. 218 pp. Price, $3.75.

PRACTICAL CLINICAL PSYCHIATRY. Edward A. Strecker (7th ed.). Philadelphia: Blakiston, 1951. 506 pp. Price, $7.00.

PROCEEDINGS OF INSERVICE TRAINING COURSE IN WATER WORKS PROBLEMS—FEBRUARY 15–16, 1951. Ann Arbor, Mich.: University of Michigan, School of Public Health. 129 pp. Price, $2.00.

RADIOACTIVITY APPLIED TO CHEMISTRY. Edited by Arthur C. Wahl and Norman A. Bonner. New York: Wiley, 1951. 575 pp. Price, $7.50.

REPORT OF THE COMMISSION ON NARCOTIC DRUGS. Supplement No. 9. A United Nations Publication. New York: Columbia University Press, 1950. 70 pp. Price, $.60.

TEXTBOOK OF MEDICAL CONDITIONS FOR PHYSIOTHERAPISTS. Joan E. Cash. Philadelphia: Lippincott, 1951. 342 pp. Price, $5.00.

UNITED STATES CADET NURSE CORPS, 1943–1948. Washington: Govt. Ptg. Office, 1950. 100 pp. Price, $1.00.

Motion Picture Film Reviews

HOMER N. CALVER, *Film Review Editor*

Survival Under Atomic Attack. Civilian preparation for possible enemy attack. 9 minutes. The first of nine films on the general theme of civilian defense to be issued by the Civilian Defense Administration. All to be released through United World Films, Inc., 1445 Park Avenue, New York 29, N. Y. Various black and white versions of this film are available: 16 mm. with sound, at $17.50; 16 mm. without sound, at $9.75; 8 mm. silent, at $5.50. Headline prints in 16 mm. are $2.75 and in 8 mm. are $1.75. 35 mm. prints for nontheatrical use cost $60. Prints will also be available for rental from film rental libraries.

Other films in the series, to be available after July 15, are: Preparing Your Home Against Atomic Attack, Fire Fighting for Householders, The Cities Must Fight, Civil Defense for Industry, What You Should Know About Biological Warfare, What You Should Know About Poison Gases, Emergency Action To Save Lives, and Civil Defense for Schools.

Survival Under Atomic Attack shows protective measures for the civilian population. It deals with steps to be taken at home, on the street, and in public buildings in bombings both with and without warning. Stock atomic bomb explosions are included, and the film maintains an acceptable authenticity throughout. It is based upon the official U. S. Government booklet of the same title and is therefore identical with the information given to the lay public in printed form up to now.

As with Pattern for Survival, a speaker thoroughly familiar with the subject and with his community's special problems should accompany the film to answer audience questions.

Civil defense workers will find this movie useful. Because it has condensed much information, it necessarily omits extensive detail. But at the present time, with the adult public still largely unaware of defensive measures, this film offers an adequate beginning in visual form of the bulletin, which, because of its extensive circulation, should now be familiar to most citizens. The film, of course, has many advantages over the leaflet.

It is narrated, does not include scenes of public hysteria (its victims protect themselves without excessive dramatics), and its treatment makes it applicable to audiences of any age.

GEORGE M. UHL

Hear Better: Better Ears. Structure and care of the ears. 16 mm. Color version, as well as black and white. Sound. 10 minutes. Produced for use with primary and intermediate grades by Coronet Films, 65 E. South Water Street, Chicago 1, Ill. Black and white, $50; color print, $100. Consult local film rental libraries for short-term rental.

The importance of sound in our daily life, how our ears function, and how to guard and protect the precious sense of hearing is pleasantly illustrated in this film. Beginning with a sequence of morning sounds, the picture vividly demonstrates how dependent we are upon our ears, as we listen through the ears of a little boy. Jack is awakened by an alarm clock; he hears his father whistling, and his sister's footsteps as she goes downstairs to breakfast; a warning chime reminds him it's time for school—on the way, he hears the policeman's whistle and the sound of an approaching car.

As he approaches the school playground, one of the youngsters is struck on the ear by a ball. This little incident leads easily into a session with the

school nurse, who explains the structure of the ear to the children with the help of an animated wall chart and emphasizes the basic rules for caring for the ears and protecting good hearing.

Perhaps a greater degree of animation might have been used to advantage in illustrating the structure and function of the ear; on the whole, however, the film is excellently produced and should be of value when used as a supplement to a more comprehensive classroom discussion of the hearing problem.

ESTELLE E. SAMUELSON
CORLIS WILBER

Guard Your Heart. How the heart works in health and in certain heart conditions. 16 mm. Black and white. Sound. 27 minutes. Produced for the American Heart Association by Bray Studios, 729 Seventh Avenue, New York 19, N. Y. Prints available at $150. Consult local film rental libraries for rental rates.

Like too many "educational" motion pictures, this is an illustrated lecture. It is a good illustrated lecture, but except for brief sequences at the beginning and end, it does not take advantage of the motion picture technique.

In the traditional manner, we find Sam pretentiously doing all the wrong things, an understanding wife who sends him to the doctor, and a lecture by the doctor on the anatomy and physiology of the heart and circulation. Briefly, all too briefly, Sam is seen reforming. The actors play their parts well, the photography and sound are good; the animation is especially excellent. However, well over half the running time is used up in the doctor's talk, apparently on the assumption that if people know what a heart looks like, where it is, and how it and its related blood vessels operate, they will automatically know what to do and what not to do to protect it. Since this is an assumption of dubious validity, the full value of the film will be realized only if it is used as a basis for discussion.

For the beginning medical student or nurse or first aid class, this lecture is useful as any training film could be. For the layman, there is insufficient down-to-earth demonstration of what a person should or should not do to guard his heart. Furthermore the lecture is replete with medical terms like "arteriosclerosis" and "coronary thrombosis," which confuse the layman even though the conditions are beautifully illustrated in the animation.

In a superb and successful effort to convey information, the picture fails to convey knowledge, especially knowledge that might affect behavior. Briefly, one is left with a feeling that if one has a pain in the chest, he had better see a doctor (which is all to the good)—that the heart is a complicated organ which we ought to take care of (which most people already know)—and that we ought not to run for buses or eat our lunches at our desks. Also, seeing the doctor seems to improve one's golf game. It seemed to this reviewer that these simple messages could have been driven home in much less time and that more direct stimuli to action might have been included. HOMER N. CALVER

Preliminary Program of the Scientific Sessions of the 79th Annual Meeting of the American Public Health Association, the 18th Annual Meeting of Its Western Branch, and Meetings of Related Organizations

San Francisco, California

October 29—November 2, 1951

The following pages present first the program of the Western Branch, whose meetings are concentrated on Monday, October 29; then the programs of related organizations with meetings also scheduled for Monday; finally, the programs of the Sections of the American Public Health Association, the General and Special Sessions, and meetings of related organizations taking place from Tuesday, October 30, through Friday, November 2.

All meetings will be held in the Civic Auditorium and the Palace and Whitcomb Hotels, except as otherwise noted in the program.

The Registration Desk will be in the Civic Auditorium and will open for the registration of delegates at 9:00 A.M. on Monday, October 29, at which time final programs will be distributed. San Francisco is on Pacific Coast Time.

Delegates are reminded that no badges or other registration credentials are required for meetings scheduled for Monday morning.

SCIENTIFIC SESSIONS OF THE 18TH ANNUAL MEETING OF THE WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION

MONDAY, 8:00 A.M.

WESTERN BRANCH

Breakfast and Morning Session—Crystal Room, Whitcomb Hotel

A General Session of the Western Branch will follow breakfast in this room.

MONDAY, 12:00 P.M.

VENEREAL DISEASE CONTROL SECTION—WESTERN BRANCH

Luncheon Session—Windsor Room, Whitcomb Hotel

Afternoon Session—Room 405, Civic Auditorium

Public Health Aspects of Late Latent Syphilis. CHARLES W. BARNETT, M.D.

The Life Cycle of the Treponema pallidum. CHARLES M. CARPENTER, M.D.

Pharmacological Action of Penicillin in the Destruction of the Treponema pallidum. CHAUNCEY LEAKE, Ph.D.

New Methods in the Diagnosis of Granuloma inguinale. ROBERT B. GREENBLATT, M.D.

Diagnostic Methods and Their Significance in the Diagnosis of Lymphogranuloma venereum. COLONEL DWIGHT M. KUHNS, MC, USA.

Diagnostic Acuity in Cardiovascular Syphilis. SALVATORE LUCIA, M.D.

(Ten minute discussion periods will follow each paper. Discussion leaders to be announced.)

MONDAY, 12:30 P.M.

INDUSTRIAL HYGIENE SECTIONS OF THE WESTERN BRANCH AND THE A.P.H.A.

Joint Luncheon and Afternoon Session—California Room, Palace Hotel

I. Administrative Problems:
- A. How Do We Work with Management?
- B. How Do We Work with Labor?
- C. How Do We Work with Physicians?
- D. How Do We Work with Other Agencies?

II. Technical Problems:
Discussion to be based primarily on questions submitted in advance by members of the Industrial Hygiene Section.

(Speakers to be announced.)

MONDAY, 12:30 P.M.

SANITATION SECTION—WESTERN BRANCH

Luncheon and Afternoon Session—Georgian Room, Whitcomb Hotel

General Introduction.

An Evaluation Study on the Effects of Food Handlers' Training for Restaurant Personnel. RALPH L. TARBETT.

(Other speakers to be announced.)

Section Business and Election of Officers.

MONDAY, 2:30 P.M.

LABORATORY SECTION—WESTERN BRANCH AND CONFERENCE OF STATE AND PROVINCIAL PUBLIC HEALTH LABORATORY DIRECTORS

Joint Session—Larkin Hall (Large), Civic Auditorium

(Speakers to be announced.)

A business meeting of the Laboratory Section will follow this session in this room.

RECORDS AND STATISTICS SECTION—WESTERN BRANCH, AND AMERICAN ASSOCIATION OF REGISTRATION EXECUTIVES

Joint Session—Larkin Hall (Small), Civic Auditorium

(Speakers to be announced.)

MONDAY, 8:00 P.M.

PUBLIC HEALTH EDUCATION SECTION—WESTERN BRANCH

Evening Session—Room 404, Civic Auditorium

Section Business and Election of Officers.

MEETINGS OF RELATED ORGANIZATIONS

MONDAY

ASSOCIATION OF BUSINESS MANAGEMENT IN PUBLIC HEALTH

Morning and Afternoon Sessions—Polk Annex, Civic Auditorium

CONFERENCE OF STATE DIRECTORS OF PUBLIC HEALTH EDUCATION

Morning and Afternoon Sessions—Room 404, Civic Auditorium

MONDAY, 9:30 A.M.

AMERICAN ASSOCIATION OF REGISTRATION EXECUTIVES

Morning Session—Room 409, Civic Auditorium

AMERICAN SCHOOL HEALTH ASSOCIATION

Morning Session—Polk Hall, Civic Auditorium

Findings with Implications of Psychological Testing in Junior and Senior High School. ALICE O'SULLIVAN.

Strength and Weaknesses of the Wetzel Grid in the School Health Program: Preparation of Personnel for the Use of the Grid. ROBERT DEISHER, M.D.

Experience in the Use of the Grid in the Schools of King County. ELIZABETH BRYAN, M.D.

Report of a Survey of Medical Service in School Health Systems. HOLGER F. KILANDER, M.D.

Some Practical Solutions to the Dental Problems in School Systems.

(Speaker to be announced.)

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

Morning Session—Larkin Hall (Small), Civic Auditorium

Presiding: ARTHUR H. HERBERGER.

Committee Reports on Administrative Practices.

Discussion.

MONDAY, 9:30 A.M.

CONFERENCE OF PUBLIC HEALTH VETERINARIANS

Morning Session—Room 403, Civic Auditorium

Presiding: JAMES H. STEELE, D.V.M.

Food Hygiene in Civil Defense Planning. MARTIN D. BAUM, D.V.M.

Report of the Poultry Committee. OSCAR SUSSMAN, D.V.M.

Report of the Civil Defense Committee. LEROY DAVENPORT, D.V.M.

Report of the Milk Hygiene Committee. E. R. PRICE, D.V.M.

Care of Wounds Inflicted by Rabid Animals. HOWARD J. SHAUGHNESSY, PH.D.

Development of Veterinary Public Health. GEORGE HART, M.D.

CONFERENCE OF STATE AND PROVINCIAL PUBLIC HEALTH LABORATORY DIRECTORS

Morning Session—Larkin Hall (Large), Civic Auditorium

COUNCIL OF STATE DIRECTORS OF PUBLIC HEALTH NURSING

Morning Session—Room 405, Civic Auditorium

PUBLIC HEALTH CANCER ASSOCIATION

Morning Session—Room 402, Civic Auditorium

Presiding: G. HOWARD GOWEN, M.D., *President*

TOOLS FOR CANCER CONTROL

The Role of State Health Departments in the Study of Occupational Cancer. W. C. HUEPER, M.D.

Professional Education and Training in Cancer Control. PAUL R. GERHARDT, M.D.

New Approaches to Cancer Nursing Education. ROSALIE PETERSON, R.N.

Experience in the State-wide Use of the National Cancer Institute—American Cancer Society Film, "Breast Self-Examination." EDMUND G. ZIMMERER, M.D.

MONDAY, 12:30 P.M.

AMERICAN PUBLIC HEALTH ASSOCIATION GOVERNING COUNCIL

Luncheon and Afternoon Meeting—Comstock Room, Palace Hotel

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

Luncheon Session—Marshall Room, Whitcomb Hotel

Business Meeting.

Report of the Committee on Ethics.

Election of Officers.

CONFERENCE OF PROFESSORS OF PREVENTIVE MEDICINE

Luncheon and Afternoon Session—Corinthian Room, Whitcomb Hotel

MONDAY, 2:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Afternoon Session—Polk Hall, Civic Auditorium

HEALTH TEACHING IN THE PUBLIC SCHOOLS

Panel Discussion

(Participants to be announced.)

ASSOCIATION OF MATERNAL AND CHILD HEALTH AND CRIPPLED CHILDREN'S DIRECTORS

Afternoon and Evening Session—Room 402, Civic Auditorium

(The evening session will begin at 8:00 P.M.)

MONDAY, 2:30 P.M.

CONFERENCE FOR HEALTH COUNCIL WORK

Afternoon Session—French Lower Parlor, Palace Hotel

Presiding: ALEXANDER ROPCHAN.

NEW DEVELOPMENTS IN COMMUNITY ORGANIZATION FOR HEALTH

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS AND CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—Public Health Auditorium, 101 Grove Street

Panel Discussion

Reciprocal Milk Programs:

ALFRED H. FLETCHER.
MORTON S. HILBERT.
WALTON PURDOM.
FRANK L. WOODWARD.

The Field of Sanitation Activities at State and Local Levels:

CHARLES L. SENN.
JEROME H. SVORE.

(Other participants to be announced.)

CONFERENCE OF PUBLIC HEALTH VETERINARIANS

Afternoon Session—Room A, Palace Hotel

Presiding: BEN H. DEAN, D.V.M.

Animal Diseases and Their Relation to Civil Defense. LT. COLONEL FRANK A. TODD, VC

The Veterinary Profession in Public Health. WILTON L. HALVERSON, M.D.

Veterinary Responsibilities in Civil Defense. DANIEL BERGSMA, M.D.

Animal Nutrition and Its Effect on Public Health. AGNES FAYE MORGAN, PH.D.

Control of Rabies as a Public Health Problem. COLONEL FRANK M. LEE.

Veterinary Public Health Problems—*Panel Discussion.*

Participants:

Federal Program. JAMES H. STEELE, D.V.M.
State Program. BEN H. DEAN, D.V.M.
Local Program. ROBERT J. ANDERSON, M.D.
Education Program. GEORGE HART, M.D.
International Program. BENJAMIN D. BLOOD, D.V.M.

MONDAY, 2:30 P.M.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

Afternoon Session—Room 403, Civic Auditorium

UNITED EFFORT SAVES SIGHT

Responsibility of the Public Health Nurse.

Eye Health of School Children.

Preventing Blindness Among Adults.

(Speakers to be announced.)

PUBLIC HEALTH CANCER ASSOCIATION

Afternoon Session—Rose Room, Palace Hotel

Presiding: LESTER BRESLOW, M.D.

TOOLS FOR CANCER CONTROL

(Continued from morning session)

Preliminary Report on Evaluation of National Cancer Institute—American Cancer Society, "Breast Self-Examination" Film. EDWARD M. COHART, M.D., AND JOSEPH K. HILL, PH.D.

Early Diagnosis of Cancer by Cytologic Methods. HERBERT F. TRAUT, M.D.

Preliminary Report on Chest Tumor Suspects, Los Angeles Mass X-ray Survey (1,867,201 subjects). LEWIS W. GUISS, M.D.

Tumor Clinics in the Cancer Control Program. JAMES BLOOM, M.D.

MONDAY, 5:00 P.M.

RECEPTION TO THE PRESIDENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Gold Ball Room, Palace Hotel, 5–7 P.M., Informal

MONDAY, 6:30 P.M.

CONFERENCE FOR HEALTH COUNCIL WORK

Dinner and Evening Session—French Lower Parlor, Palace Hotel

Film Showing: (Title to be announced.)

Discussion.

Business Meeting.

MONDAY, 6:30 P.M.

CONFERENCE OF PUBLIC HEALTH VETERINARIANS

Dinner and Evening Session—Room A, Palace Hotel

Interrelationships of Veterinarians in Animal Industry and Public Health. C. U. DUCKWORTH, D.V.M.

ENGINEERING SECTION, CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS, CONFERENCE OF STATE SANITARY ENGINEERS, AND THE WESTERN BRANCH SANITATION SECTION

Annual Engineers' Stag Dinner, Concert Room, Palace Hotel

"BILL" ORCHARD, *Master of Ceremonies.*

PUBLIC HEALTH CANCER ASSOCIATION

Dinner and Evening Session—Rose Room, Palace Hotel

MONDAY, 8:00 P.M.

ASSOCIATION OF RESERVE OFFICERS OF THE U. S. PUBLIC HEALTH SERVICE

Evening Session—Public Health Auditorium, 101 Grove Street

TUESDAY, 8:00 A.M.

COMMISSIONED OFFICERS ASSOCIATION OF THE U. S. PUBLIC HEALTH SERVICE

Breakfast Session—Corinthian Room, Whitcomb Hotel

(Open to all U. S. Public Health Service Officers.)

NATIONAL ADVISORY COUNCIL, CLEVELAND HEALTH MUSEUM

Breakfast Session—Room 2127, Palace Hotel

MEETINGS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

TUESDAY, 9:30 A.M.

DENTAL HEALTH, ENGINEERING, AND HEALTH OFFICERS SECTIONS

Joint Session—Polk Hall, Civic Auditorium

Presiding: DAVID B. AST, D.D.S.

WATER FLUORIDATION

Public Health Phases of Community Water Fluoridation. HERMAN E. HILLEBOE, M.D.

The Dentist's Responsibility in Community Water Fluoridation Programs. ROBERT A. DOWNS, D.D.S.

Engineering Problems in Water Fluoridation. F. J. MAIER.

Wisconsin Experience in Applying Fluoride to Water. OSWALD S. MUEGGE.

Business meetings of the Engineering and Health Officers Sections follow this session in this room.

EPIDEMIOLOGY SECTION

First Session—Room 405, Civic Auditorium

Presiding: THOMAS FRANCIS, JR., M.D., *Chairman.*

Observations on Epidemiological Aspects of Group A Coxsackie Virus. ROGER M. COLE, M.D., JOSEPH A. BELL, M.D., EDWARD A. BEEMAN, M.D., AND ROBERT J. HUEBNER, M.D.

Epidemiological Studies of Pulmonary Histoplasmosis in a Farm Family. CLAYTON G. LOOSLI, M.D., J. THOMAS GRAYSON, M.D., E. R. ALEXANDER, AND L. W. COMBS, M.D.

Brill's Disease: Study of 26 Cases in Yugoslavia. EDWARD S. MURRAY, M.D., T. PSORN, M.D., P. DJAKOVIC, M.D., S. SIJELSKI, M.D., V. BROZ, M.D., FRANJO LJUPSA, M.D., AND JOHN C. SNYDER, M.D.

The Use of Triethylene Glycol Vapor in the Control of Acute Respiratory Diseases in Navy Recruits:

I. The Physical Factors and Effect on Air-Borne Bacteria. RALPH T. GOERNER, JR., W.O., HC, USN.

II. The Effect on Acute Respiratory Diseases. ROBERT W. WEBER, Lt. (j.g.), MC, USN.

Election of Officers.

TUESDAY, 9:30 A.M.

FOOD AND NUTRITION AND MATERNAL AND CHILD HEALTH SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Larkin Hall (Large), Civic Auditorium

Presiding: (To be announced.)

LONG-TERM ILLNESS IN CHILDREN

The Rheumatic Fever Unit at Richmond Permanente Hospital.

Panel Discussion

Leader: JOHN A. ANDERSON, M.D.

(Participants to be announced.)

INDUSTRIAL HYGIENE, MEDICAL CARE, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Larkin Hall (Small), Civic Auditorium

Presiding: HENRY KESSLER, M.D.

REHABILITATION OF THE INDUSTRIAL WORKER

Disabled Men Work Again. STANWOOD L. HANSON.

Rehabilitation of Disabled Miners. KENNETH E. POHLMANN.

New Trends in Vocational Rehabilitation. MARY SWITZER.

Rehabilitation Case Conference:

(Participants to be announced.)

A business meeting of the Medical Care Section follows this session in this room.

LABORATORY SECTION

First Session—Room 403, Civic Auditorium

Presiding: CHARLES M. CARPENTER, M.D., *Chairman.*

Q Fever in California XII. Certain Observations on the Relationships between Serologic Tests for Brucellosis, Syphilis, and Q Fever. EDWIN H. LENNETTE, M.D., WILLIAM H. CLARK, M.D., AND FLORENCE W. JENSEN.

Biochemical Studies of Host Resistance to Tuberculosis. MARTIN M. CUMMINGS, M.D.

Further Studies of a New Serologic Test in Tuberculosis. EDGAR R. MAILLARD, M.D.

Some Aspects of the Universal Reaction. REUBEN L. KAHN, D.Sc.

In vitro Typing of C. Diphtheriae for Virulence Testing. HOWARD L. BODILY, PH.D.

TUESDAY, 9:30 A.M.

PUBLIC HEALTH EDUCATION SECTION

First Session—Room 402, Civic Auditorium

Presiding: WILLIAM GRIFFITHS, PH.D., *Chairman.*

THE YEAR'S ACCOMPLISHMENTS

Problems of Recruiting Personnel. Report of the Committee on Recruitment and Training. *Co-Chairmen,* RUTH SUMNER, PH.D., AND SARAH MARZELLIS.

What's New in Television. Report of the Committee on Materials and Techniques. *Co-Chairmen,* ROBERT B. THORPE AND GEORGE A. KAVNER.

Salaries of Health Education Personnel. Report of the Conference Committee on Salaries of Health Education Personnel. *Co-Chairmen,* ANN WILSON HAYNES AND ALFRED K. GEORGE, M.D.

Communicating with Each Other. Report of the Newsletter Committee.

Co-Chairmen, EUNICE I. TYLER, PH.D., AND NETTA W. WILSON.

What Do We Want from Our Section?—*Panel Discussion.*

Moderator: VIVIAN V. DRENCKHAHN.

Participants:

DONALD A. DUKELOW, M.D., *Chairman,* Committee on Committees
MARY LOU SKINNER AND ANDIE L. KNUTSON, PH.D., *Co-Chairmen,* Committee on Research and Evaluation.

Committee Reports:

Membership Committee. *Co-Chairman,* MERWIN L. NOBLE.
Eligibility Committee. *Chairman,* LEVITTE B. MENDEL.
Resolutions Committee. *Chairman,* C. MAYHEW DERRYBERRY, PH.D.
Nominating Committee. *Chairman,* EVELYN RAHM.

Section Business and Election of Officers.

STATISTICS SECTION AND AMERICAN ASSOCIATION OF REGISTRATION EXECUTIVES

Joint Session—Room 409, Civic Auditorium

Presiding: OSWALD K. SAGEN, PH.D., AND JOHN J. SULLIVAN, JR.

STATISTICAL NEEDS IN CIVIL DEFENSE

Panel Discussion

Moderator: FRANK V. JONES, JR.

Participants:

HENRIETTA HERBOLSHEIMER, M.D.
MARTA FRAENKEL, M.D.
ARTHUR W. HEDRICH, SC.D.
HALBERT L. DUNN, M.D.
J. B. ASKEW, M.D.

A business meeting of the Statistics Section follows this session in this room.

TUESDAY, 9:30 P.M.

SCHOOL HEALTH SECTION

First Session—Room 404, Civic Auditorium

Presiding: FRED V. HEIN, PH.D., *Chairman.*

Chairman's Report. FRED V. HEIN, PH.D.

Functions of New Section Committees. THOMAS E. SHAFFER, M.D.

Reports of Committees:

Rural School Health Services. *Chairman,* ARTHUR F. DAVIS, DR.P.H.
School Health Records. JESSIE M. BIERMAN, M.D.
Undergraduate Preparation in Health for Elementary Teachers. ETHEL M. TOBIN.
Health Service Programs for Secondary Schools. FRANKLIN M. FOOTE, M.D.
Research in School Health. *Chairman,* WARREN H. SOUTHWORTH, DR.P.H.
Evaluation of School Health Programs. *Chairman,* JESSIE M. BIERMAN, M.D.
Health Content of Textbooks. *Chairman,* HOLGER F. KILANDER, M.D.

Election of Officers.

School Health in Great Britain. CHARLES C. WILSON, M.D.

TUESDAY, 12:30 P.M.

DELTA OMEGA

Luncheon Session—French Lower Parlor, Palace Hotel

FOOD AND NUTRITION SECTION

Luncheon Session—Comstock Room, Palace Hotel

Presiding: GLENN G. SLOCUM, PH.D., *Chairman.*

Section Business.

PUBLIC HEALTH NURSING SECTION

Luncheon Session—Concert Room, Palace Hotel

Presiding: JANET F. WALKER, *Vice-Chairman.*

Analysis of Method and Findings of "A Study of Combination Services in Public Health Nursing." (Speaker to be announced.)

Section Business.

TUESDAY, 2:30 P.M.

DENTAL HEALTH, MATERNAL AND CHILD HEALTH, AND SCHOOL HEALTH SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Larkin Hall (Large), Civic Auditorium

Presiding: (To be announced.)

PRIORITIES IN HEALTH SERVICES FOR CHILDREN OF SCHOOL AGE

Progress in School Dental Programs. DONALD J. GALAGAN, D.D.S.

Washington County School Health Demonstration. MARY WARNER, M.D.

The San Francisco School Health Project—*Panel Discussion.*

Participants:

NOELLE ANDERSON, R.N.
PAUL S. BARRETT, M.D.
PATRICIA HALLINAN, M.D.
FRED HANSEN.
DOROTHY LAKE.
WATT A. LONG.
DORIS ROBINSON, R.N.
JANE RYAN.

ENGINEERING, EPIDEMIOLOGY, HEALTH OFFICERS, AND LABORATORY SECTIONS

Joint Session—Polk Hall, Civic Auditorium

BIOLOGICAL WARFARE DEFENSE

(Speakers to be announced.)

FOOD AND NUTRITION, PUBLIC HEALTH EDUCATION, AND PUBLIC HEALTH NURSING SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Room 402, Civic Auditorium

Presiding: GLENN G. SLOCUM, PH.D.

WHAT CAN WE BELIEVE ABOUT NUTRITION?

Panel Discussion

Moderator: ALFRED W. CRAPSEY.

(Participants to be announced.)

TUESDAY, 2:30 P.M.

INDUSTRIAL HYGIENE SECTION

First Session—Larkin Hall (Small), Civic Auditorium

Presiding: J. WILLIAM FEHNEL, *Chairman.*

A Physiological Appraisal of Resuscitation Techniques. LEON LEWIS, M.D.

New Developments in Therapy and Evaluation of Disability in Silicosis. HARLEY L. MOTLEY, M.D.

Lead Poisoning in St. Louis. B. W. LEWIS, M.D.

A Comprehensive Industrial Hygiene Plant Study. HERBERT K. ABRAMS, M.D.

MEDICAL CARE SECTION

First Session—Room 405, Civic Auditorium

MEDICAL CARE FOR THE NEEDY

Moderator: JAMES P. DIXON, M.D.

Tax-Supported General Medical Care for the Needy. (Speaker to be announced.)

Panel Participants:

PEARL BIERMAN.
HAROLD D. CHOPE, M.D.
I. S. FALK, PH.D.
EDWARD M. HOLMES, JR., M.D.
CHARLES I. SCHOTTLAND.
(Other participants to be announced.)

Section Business and Election of Officers.

STATISTICS SECTION

First Session—Room 404, Civic Auditorium

Presiding: OSWALD K. SAGEN, PH.D., *Vice-Chairman.*

Methods of Predicting Total Cases of Poliomyelitis During Epidemic Periods. F. M. HEMPHILL, PH.D.

Factors in the Higher Mortality of Our Older Age Groups. LOUIS I. DUBLIN, PH.D.

An Approach To Solving the Records and Reporting Needs of Local Health Departments in California. PAUL W. SHIPLEY.

Statistical Problems in the Study of Mental Illness Morbidity. ERNEST M. GRUENBERG, M.D., BERNARD M. KRAMER, PH.D., HILDA SILVERMAN, AND CHARLES V. WILLIE.

Business Meeting.

TUESDAY, 8:30 P.M.

FIRST GENERAL SESSION

War Memorial Opera House, Civic Center

Presiding: WILLIAM P. SHEPARD, M.D., *President,* American Public Health Association.

Addresses of Welcome:

HONORABLE ELMER E. ROBINSON, Mayor of the City of San Francisco.
THOMAS A. BROOKS, Chief Administrative Officer, City and County of San Francisco.
J. C. GEIGER, M.D., Director of Public Health, City and County of San Francisco.
WILTON L. HALVERSON, M.D., Director of Public Health, California State Department of Public Health, and President, Western Branch of the American Public Health Association.

(Title to be announced.) John J. Sippy Memorial Lecture. HONORABLE EARL WARREN, Governor of the State of California.

Presentation of the Lasker Awards for 1951.

WEDNESDAY, 8:00 A.M.

COLUMBIA UNIVERSITY SCHOOL OF PUBLIC HEALTH ALUMNI

Breakfast Session—English Room, Palace Hotel

GRADUATES' ORGANIZATION, SCHOOL OF HYGIENE, UNIVERSITY OF TORONTO

Breakfast Session—Room 2051, Palace Hotel

THE JOHNS HOPKINS UNIVERSITY ALUMNI

Breakfast Session—Comstock Room, Palace Hotel

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

Breakfast Session—California Room, Palace Hotel

UNIVERSITY OF MICHIGAN ALUMNI

Breakfast Session—Rose Room, Palace Hotel

WEDNESDAY, 9:30 A.M.

FIRST SPECIAL SESSION

Larkin Hall (Large), Civic Auditorium

Presiding: WILLIAM P. SHEPARD, M.D.

AGING CHALLENGES PUBLIC HEALTH

Health Promotion in the Older Years. JOSEPH W. MOUNTIN, M.D.

Rehabilitation and Restoration of Older People. MURRAY FERDERBER, M.D.

Housing and Living Arrangements for Older People. JOSEPH W. WILLARD.

The Role of Industrial Hygiene in Relation to the Older Worker. CLIFFORD KUH, M.D.

Discussants: (To be announced.)

Summary: CLARK TIBBITTS.

ENGINEERING SECTION

First Session—Room 403, Civic Auditorium

Presiding: GEORGE O. PIERCE, *Chairman.*

MANPOWER

Sanitary Engineering Resources. FRANCIS B. ELDER.

The Sanitary Engineer, Where He Comes from and Goes to. ARTHUR P. MILLER, C.E.

Report of the Committee on Training. *Chairman,* ELLIS S. TISDALE.

The Role of the Engineering School in Meeting the Manpower Crisis. (Speaker to be announced.)

The Role of the School of Public Health in Meeting the Manpower Crisis. HENRY F. VAUGHAN, DR.P.H.

FOOD AND NUTRITION SECTION

First Session—Room 409, Civic Auditorium

Presiding: C. FRANCES MACKINNON.

NUTRITIONAL STATUS OF PEOPLES IN THE PACIFIC AREAS

Report of the Rice Enrichment Project in Bataan, Philippines. ELENA S. QUIOGUE.

The Nutritional Status of the Eskimo. VICTOR E. LEVINE, M.D.

(Other speakers to be announced.)

WEDNESDAY, 9:30 A.M.

EPIDEMIOLOGY, HEALTH OFFICERS, LABORATORY, AND MATERNAL AND CHILD HEALTH SECTIONS

Joint Session—Polk Hall, Civic Auditorium

Presiding: (To be announced.)

SOME PROBLEMS IN IMMUNIZATION

The Relationship of Immunization to Poliomyelitis. MORRIS GREENBERG, M.D.

The Role of Parenteral Injections on the Appearance, Distribution, and Extent of Paralysis in Poliomyelitis. ROBERT F. KORNS, M.D., ROBERT M. ALBRECHT, M.D., AND FRANCES E. LOCKE.

Immunization of Adults Against Diphtheria and Tetanus. GEOFFREY EDSALL, M.D.

Problems in Maintaining Immunity to Smallpox. MAJOR ABRAM S. BENENSON, MC, USA.

Recent Developments in Rabies Prophylaxis. HILARY KAPROWSKI, M.D., AND HEROLD R. COX, SC.D.

INDUSTRIAL HYGIENE SECTION

Second Session—Larkin Hall (Small), Civic Auditorium

Presiding: J. WILLIAM FEHNEL, *Chairman.*

INDUSTRIAL SANITATION PRACTICES

Recommended Standard for Locker Rooms, Washrooms, and Change Houses in Industry. FRANK E. CASH.

The Carbon Monoxide Poisoning Prevention Program of New York City. JEROME B. TRICHTER AND M. HELPERN.

The Industrial Hygiene of Insecticide Application—A Case History. RALPH R. SULLIVAN, M.D.

The Safe Underground Use of Internal Combustion Engines. S. H. ASH.

Industrial Noise—Its Effects and Control. F. E. POOLE, M.D.

WEDNESDAY, 9:30 A.M.

MEDICAL CARE SECTION

Second Session—Room 404, Civic Auditorium

METHODS OF PAYMENT FOR PHYSICIANS' SERVICES IN MEDICAL CARE PROGRAMS

Moderator: DEAN A. CLARK, M.D.

Methods of Payment for Physicians' Services—A Critical Review. FRANZ GOLDMANN, M.D.

Panel Participants:

J. P. FITZGIBBON, M.D.
JAMES C. HARDING, M.D.
MARCIA HAYS, M.D.
ALBERT E. LARSEN, M.D.
THOMAS B. MCKNEELY, M.D
JOHN NEWDORP, M.D.

(Other participants to be announced.)

PUBLIC HEALTH EDUCATION AND SCHOOL HEALTH SECTIONS, AND THE WESTERN BRANCH PUBLIC HEALTH EDUCATION SECTION

Joint Session—Room 402, Civic Auditorium

Presiding: DOROTHY B. NYSWANDER, PH.D.

MOTIVATION IN SCHOOL HEALTH PROGRAMS

Coördinator: ETHEL MEALEY.

Narrator: RUTH FREEMAN, R.N.

Part I. What and Where Are the Problems?
School Administrator. WATT A. LONG.
School Physician. GEORGE M. WHEATLEY, M.D.
School Nurse. ELLA E. MCNEIL, R.N.
School Dentist. DONALD J. GALAGAN, D.D.S.
School Coördinator. VIVIAN DRENCKHAHN.
School Curriculum Specialist. LEONARD GRINDSTAFF, PH.D.

Part II. Exploring Solutions.
Psychologist. ALEX C. SHERRIFFS, PH.D.
Psychiatric Social Worker. ELIZABETH LEWTON.
Health Officer. JAMES C. MALCOLM, M.D.
Health Educator. OLIVER E. BYRD, M.D.

Part III. "What Do You Do in This Situation?"
The audience will formulate questions to be discussed by the resource panel.

Part IV. Summary. A Resumé of Motivational Factors That Have Application in the School Health Program. J. CECIL PARKER, PH.D.

WEDNESDAY, 9:30 A.M.

PUBLIC HEALTH NURSING SECTION

First Session—Public Health Auditorium, 101 Grove Street

Presiding: MARGARET L. SHETLAND, R.N., *Chairman.*

DEVELOPMENTS AND ADJUSTMENTS IN PUBLIC HEALTH NURSING SERVICE

Coördinator: ALMA C. HAUPT, R.N.

Civil Defense. MARY E. PARKER, R.N.

State and County Programs. PORTIA G. IRICK, R.N.

Practical Nurses in Public Health. MARGARET F. KNAPP, R.N.

(Other speaker to be announced.)

Section Business.

WEDNESDAY, 12:30 P.M.

AMERICAN ASSOCIATION OF SCHOOLS OF PUBLIC HEALTH

Luncheon Session—Room 2109, Palace Hotel

ENGINEERING SECTION

Luncheon Session—Georgian Room, Whitcomb Hotel

Presiding: GEORGE O. PIERCE, *Chairman.*

Section Business and Committee Reports.

PUBLIC HEALTH EDUCATION SECTION

Luncheon Session—Crystal Room, Whitcomb Hotel

Presiding: WILLIAM GRIFFITHS, PH.D., *Chairman.*

Introduction. LUCY S. MORGAN, PH.D.

The Role of WHO in Health Education. A. HELEN MARTIKAINEN.

UNIVERSITY OF CALIFORNIA PUBLIC HEALTH ALUMNI ASSOCIATION

Luncheon Session—Corinthian Room, Whitcomb Hotel

WEDNESDAY, 2:30 P.M.

GOVERNING COUNCIL

Second Meeting, Rose Room, Palace Hotel

WEDNESDAY, 5:00 P.M.

UNIVERSITY OF NORTH CAROLINA ALUMNI

Social Hour, 5–7 P.M., Dr. E. G. McGavran's Suite, Palace Hotel

WEDNESDAY, 6:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Dinner Session—California Room, Palace Hotel

Presentation of the William A. Howe Award.

Address. JOHN W. KLINE, M.D.

MILITARY GOVERNMENT AND CIVIL AFFAIRS PUBLIC HEALTH SOCIETY

Dinner Session—French Lower Parlor, Palace Hotel

HARVARD PUBLIC HEALTH ALUMNI ASSOCIATION

Dinner Session—Concert Room, Palace Hotel

WEDNESDAY, 8:00 P.M.

ASSOCIATION OF HOSPITAL PLANNING AGENCIES

Evening Session—Polk Annex, Civic Auditorium

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS

Evening Session—Larkin Hall (Small), Civic Auditorium

WEDNESDAY, 8:00 P.M.

HOME ACCIDENT PREVENTION

Public Health Auditorium, 101 Grove Street

Under the auspices of the Subcommittee on Accident Prevention of the Committee on Administrative Practice

Presiding: I. JAY BRIGHTMAN, M.D.

TECHNICAL APPROACHES TO THE HOME ACCIDENT PROBLEM

Epidemiological Techniques in Home Accident Prevention. JOHN E. GORDON, M.D., HELEN L. ROBERTS, M.D., AND AUTINO FIORE, M.D.

Clinical Techniques in Child Safety. HARRY F. DIETRICH, M.D.

Mortality Analysis as a Direction Finder in Home Accident Prevention. I. JAY BRIGHTMAN, M.D., ISABEL MCCAFFREY, AND LEONARD P. COOK.

Rallying Public Support for a Home Accident Prevention Program. J. M. KAPLAN.

Panel of Interviewers:

THOMAS FANSLER.
GEORGE M. WHEATLEY, M.D.
CHARLES E. SMITH, M.D.

NOTE: Due to many technical difficulties, the Subcommittee on Accident Prevention has cancelled its plans to hold a two day institute on home accident prevention preceding the Annual Meeting. Announcements of this institute were sent to all full-time health officers in the spring.

Instead, the Subcommittee on Accident Prevention sponsors the evening program indicated above.

WEDNESDAY, 8:30 P.M.

SECOND GENERAL SESSION

War Memorial Opera House, Civic Center

Presiding: C.-E. A. WINSLOW, DR.P.H., *Editor, American Journal of Public Health.*

INTERNATIONAL HEALTH

Introduction. C.-E. A. WINSLOW, DR.P.H.

The Role of WHO, Past, Present, and Future. BROCK CHISHOLM, M.D.

Some Aspects of WHO's Program in the Western Hemiphere. FRED L. SOPER, M.D.

Application of WHO Programs and Policies in a Region. CHANDRA MANI, M.D.

Bilateral Technical Assistance Programs of the United States in the Field of Health. HENRY VAN ZILE HYDE, M.D.

Our Stake in World Health. FRANK G. BOUDREAU, M.D.

Summary by the Chairman.

THURSDAY, 8:00 A.M.

YALE UNIVERSITY ALUMNI

Breakfast Session—California Room, Palace Hotel

THURSDAY, 9:30 A.M.

DENTAL HEALTH, HEALTH OFFICERS, AND SCHOOL HEALTH SECTIONS

Joint Session—Public Health Auditorium, 101 Grove Street

Presiding: FRED V. HEIN, PH.D.

PROGRESS AND PROSPECTS IN SCHOOL HEALTH

The Role of the School Physician in Today's Schools. C. MORLEY SELLERY, M.D.

Present-Day Views on School Nursing. MARGARET A. CREE.

Coöperation of Departments of Education and Health in the Administration of School Health Programs. PAUL Q. PETERSON, M.D.

Modern Concepts of a School Dental Program. WILLIAM L. BARNUM, D.M.D.

The Place of Nutrition in School Programs of Health Service and Health Education. JENNIE I. ROUNTREE.

Promoting Mental Health Through the School Health Program. J. GREENWOOD WILSON, M.D.

ENGINEERING SECTION

Second Session—Room 405, Civic Auditorium

Presiding: GEORGE O. PIERCE, *Chairman.*

TECHNICAL DEVELOPMENTS

Reclamation of Sewage Effluents. HAROLD B. GOTAAS, SC.D.

Research Studies on Individual Sewage Disposal Systems. VERNON G. MACKENZIE.

Discussant: HARVEY F. LUDWIG.

Report of the Committee on Exploration of Research Needs. *Chairman,* M. ALLEN POND.

The Membrane Filter Method in Water Quality Tests. HAROLD F. CLARK AND PAUL W. KABLER, M.D.

THURSDAY, 9:30 A.M.

EPIDEMIOLOGY SECTION

Second Session—Room 404, Civic Auditorium

Presiding: THOMAS FRANCIS, JR., M.D., *Chairman.*

Relapse and Reinfection in Syphilis. MARGARET MERRELL, SC.D.

An Epidemiologic Approach to the Study of High Blood Pressure. E. GURNEY CLARK, M.D., AND JOHN A. MORSELL, M.D.

Chronic Alcoholism Among Suicides and Accidental Deaths from Poisoning. JOHANNES IPSEN, JR., M.D., MERRILL MOORE, M.D., AND LEO ALEXANDER, M.D.

Epidemiological Study of Carcinoma of the Breast. PAUL R. GERHARDT, M.D.

Epidemiological Methods in Administrative Practice. A. DANIEL RUBENSTEIN, M.D.

FOOD AND NUTRITION, MATERNAL AND CHILD HEALTH, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Polk Hall, Civic Auditorium

Presiding: EDWIN F. DAILY, M.D.

REEVALUATION OF EXISTING MATERNITY PROGRAMS

Indices for the Evaluation of Maternity and Newborn Programs. HELEN M. WALLACE, M.D., EDWIN GOLD, M.D., AND MARGARET A. LOSTY, R.N.

Are Public Health Maternity Programs Effective and Necessary? JOHN WHITRIDGE, JR., M.D., AND EDWARD DAVENS, M.D.

Social and Economic Factors Affecting the Mother and Child. DUGALD BAIRD, M.D.

The Nursing Aspects of Good Maternity Care. (Speaker to be announced.)

Morbidity and Mortality Before Birth. THEODORE H. INGALLS, M.D.

THURSDAY, 9:30 A.M.

HEALTH OFFICERS, PUBLIC HEALTH EDUCATION, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Larkin Hall (Large), Civic Auditorium

Presiding: HAROLD D. CHOPE, M.D.

PUBLIC RELATIONS FOR PUBLIC HEALTH

Public Relations and Mass Communications in Business and Industry: Business and Public Service. SAMUEL C. GALE.
The Local Application. CHARLES W. COLLIER.

Will Methods of Business and Industry Work in Public Health?—*Panel Discussion.*

Moderator: ANN WILSON HAYNES.

Participants:

JOHN D. PORTERFIELD, M.D.
GRANVILLE W. LARIMORE, M.D.

(Other participants to be announced.)

LABORATORY SECTION

Second Session—Larkin Hall (Small), Civic Auditorium

Presiding: CHARLES M. CARPENTER, M.D., *Chairman.*

The Use of Differential Media with the Membrane Filter. PAUL W. KABLER, M.D., AND HAROLD F. CLARK.

The Isolation of Coxsackie Virus in Southern California. RUTH A. BOAK, M.D., B. F. KLAUMANN, M.D., AND C. BRADLEY WARD, JR.

An Outbreak of Epidemic Pleurodynia, with Special Reference to the Laboratory Diagnosis of Coxsackie Virus Infections. ALFRED S. LAZARUS, PH.D.

Unrelated Vaccines and Poliomyelitis; an Experimental Study. DONALD J. DEAN, D.V.M., SOPHIA M. COHEN, AND GILBERT DALLDORF, M.D.

Typing of Strains of Poliomyelitis. CHARLES F. PAIT, JR., M.D., U. PENTTI KOKKO, M.D., AND JOHN F. KESSEL, PH.D.

THURSDAY, 9:30 A.M.

MEDICAL CARE SECTION

Third Session—Room 409 and Polk Annex, Civic Auditorium

WORKSHOPS

Room 409: **Training of Administrators for Medical Care Programs.**
Moderator: CECIL G. SHEPS, M.D.
Participants:
WILLIAM M. BOWMAN.
HENRY C. DANIELS.
LEONARD A. DEWEY, M.D.
WILLIAM S. MCNARY.
ROBERT J. MOWITZ, PH.D.
RICHARD J. STULL.
(Other participants to be announced.)

Polk Annex: **Rehabilitation—An Aspect of Community Health. A Symposium on Problems and Methods.**
Moderator: LESTER BRESLOW, M.D.
Case Finding. EDWARD L. VAN AELSTYN, M.D.
Case Services. SYDNEY S. NORWICK, M.D.
Follow-up and Program Evaluation. BERNARD D. DAITZ.
Participants:
ROBERT J. ANDERSON, M.D.
LLOYD M. FARNER, M.D.
MAURICE GROSSMAN, M.D.
HERBERT NOTKIN, M.D.
EUGENE J. TAYLOR.
RICHARD A. YOUNG, M.D.

MERIT SYSTEM SERVICE

Room 402, Civic Auditorium

(Speakers to be announced.)

STATISTICS SECTION AND BIOMETRICS SOCIETY

Joint Session—Room 403, Civic Auditorium

Presiding: JACOB YERUSHALMY, PH.D

METHODOLOGY IN FOLLOW-UP STUDIES

Practical Implications of Certain Stochastic Models on Different Methods of Follow-up Studies. EVELYN FIX, PH.D.

The Effect of Incomplete Information on Follow-up Studies. ALBERT P. ISKRANT AND QUENTIN R. REMEIN.

Survival and Success Rates Among Patients Treated for Bladder Tumors. MARDELLE L. CLARK, JEAN HALL GERENDE, AND MARY B. PEEPLES.

Estimates of Effectiveness of Cancer Therapy from Records of Mortality Following Treatment. JOSEPH BERKSON, M.D., and ROBERT P. GAGE.

THURSDAY, 12:30 P.M.

MEDICAL CARE SECTION

Luncheon Session—Comstock Room, Palace Hotel

Presiding: JAMES P. DIXON, JR., M.D., *Chairman.*

THURSDAY, 2:30 P.M.

DENTAL HEALTH AND PUBLIC HEALTH EDUCATION SECTIONS

Joint Session—Room 405, Civic Auditorium

Presiding: MABEL E. RUGEN, PH.D.

IDEA REVIEW

A Parade of Health Education Ideas—Things That Work

Panel Discussion

Leader: CHARLOTTE V. LEACH.

Assisted by: MABEL E. RUGEN, PH.D., HILDA B. CARR, MOREY R. FIELDS, M.D., RALPH T. FISHER, PHILIP E. NELBACH, GEORGE ROSEN, M.D., ROSLYN ROSEN, AND MARY LOU SKINNER.

ENGINEERING SECTION AND NATIONAL ASSOCIATION OF SANITARIANS

Joint Session—Room 404, Civic Auditorium

Presiding: GEORGE O. PIERCE.

PROGRAMS AND ACTIVITIES

Plans and Specifications for Kitchen Sanitation Items. FRANK A. GOHR, JR.

Food Plant Sanitation. PAUL LAUGHLIN.

Report of the Engineering Section Project. LAWRENCE M. FISHER, DR.P.H.

The California Water Pollution Control Program. VINTON W. BACON.

THURSDAY, 2:30 P.M.

EPIDEMIOLOGY AND STATISTICS SECTIONS, AND THE BIOMETRICS SOCIETY

Joint Session—Larkin Hall (Large), Civic Auditorium

Presiding: CHARLES E. SMITH, M.D.

METHODOLOGY IN CHRONIC DISEASE MORBIDITY STUDIES

Influence of the Dynamic Character of a Chronic Disease on the Interpretation of Morbidity Rates. PHILIP E. SARTWELL, M.D., AND MARGARET MERRELL, SC.D.

The Frequency and Geographic Distribution of Multiple Sclerosis as Indicated by Mortality Statistics and Morbidity Surveys in the United States and Canada. LEONARD T. KURLAND, M.D.

California Morbidity Research Project. ARTHUR WEISSMAN.

Discussant: ANTONIO A. CIOCCO, SC.D.

FOOD AND NUTRITION AND LABORATORY SECTIONS

Joint Session—Room 402, Civic Auditorium

Presiding: GLENN G. SLOCUM, PH.D.

NEWER DEVELOPMENTS IN FOOD INDUSTRY SANITATION

(Speakers to be announced.)

HEALTH OFFICERS SECTION

First Session—Public Health Auditorium, 101 Grove Street

Presiding: HAROLD D. CHOPE, M.D., *Chairman.*

Public Health in Japan. BRIGADIER GENERAL CRAWFORD F. SAMS, MC, USA.

Public Health in Great Britain—Utilization of Manpower. J. GREENWOOD WILSON, M.D.

Public Health in United States—Appraisal of Local Health Services. V. A. VAN VOLKENBURGH, M.D.

Public Health in Alaska—U. S. Frontier. C. EARL ALBRECHT, M.D.

INDUSTRIAL HYGIENE, PUBLIC HEALTH EDUCATION, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Polk Hall, Civic Auditorium

Presiding: J. WILLIAM FEHNEL.

OCCUPATIONAL HEALTH PROBLEMS OF COMMUNITY INTEREST

(Speakers to be announced.)

THURSDAY, 2:30 P.M.

LABORATORY SECTION AND COÖRDINATING COMMITTEE ON LABORATORY METHODS

Joint Session—Room 403, Civic Auditorium

2:30–4:00

WORKSHOP OF SUBCOMMITTEE ON STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS

Presiding: ARCHIE H. ROBERTSON, PH.D., *Chairman.*

The Q Fever Problem in Dairy Products. JOHN B. ENRIGHT, PH.D.

Detection of Quaternary Ammonium Compounds in Milk. PAUL R. ELLIKER, PH.D.

Determining the pH of Culture Media. LUTHER A. BLACK, PH.D.

Current Specifications for Bacteriological Agars: A Review. F. W. FABIAN, PH.D.

4:00–5:30

WORKSHOP OF SUBCOMMITTEE ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND SEWAGE

Presiding: F. WELLINGTON GILCREAS, *Chairman.*

Determining the Coliform Organisms in Water. WALTER L. MALLMANN, PH.D.

Instruments in Water Purification Control and Research. W. M. WALLACE.

(Other speakers to be announced.)

MEDICAL CARE SECTION

Fourth Session—Room 409, Civic Auditorium

Presiding: PAUL B. CORNELY, M.D., *Vice-Chairman.*

ORIGINAL RESEARCH IN MEDICAL CARE

Use and Abuse of Prepaid Comprehensive Physicians' Care. S. J. AXELROD, M.D., AND ROBERT E. PATTON.

Measuring the Quality of Medical Care Through Vital Statistics Based on Hospital Service Areas: I. Comparative Study of Appendectomy Rates. PAUL A. LEMBCKE, M.D.

The Family Health Study of the University of California: I. Methodology of Analysis of Morbidity, Medical Care and Medical Expenditures. JACOB YERUSHALMY, PH.D., CHARLOTTE MUELLER, PH.D., AND E. RICHARD WEINERMAN, M.D.

(Other speakers to be announced.)

THURSDAY, 2:30 P.M.

SCHOOL HEALTH SECTION

Second Session—Larkin Hall (Small), Civic Auditorium

Presiding: FRED V. HEIN, PH.D., *Chairman.*

EVALUATION PROCEDURES IN SCHOOL HEALTH—A CONSIDERATION OF SOME PRACTICAL METHODS

Discussion Leader: WATT A. LONG.

Evaluation Studies Which Have Contributed to School Health Education and Services. JESSIE M. BIERMAN, M.D., WILLIAM GRIFFITHS, PH.D., AND HELEN FORMOS.

Examples of Current Evaluations:

Does the Summer Workshop Pay Off? FRANCES C. ROTHERT, M.D.

Of What Value Are Health Inventories Filled Out by Parents? CHARLOTTE SINGER-BROOKS, M.D.

Meeting a Student Sanitation Problem Through Coöperative Planning. WILLIAM T. CULLEN.

Designs for Evaluation Studies in Health Education. BERNICE MOSS, ED.D.

Designs for Evaluation in the Health Service Field. ALFRED YANKAUER, JR., M.D.

Discussion.

THURSDAY, 7:00 P.M.

THIRD GENERAL SESSION

Annual Banquet—(Place to be announced.)

Presiding: WILLIAM P. SHEPARD, M.D., *President,* American Public Health Association.

Presidential Address. WILLIAM P. SHEPARD, M.D.

Presentation of Forty Year Membership Certificates.

Announcement of New Officers, Resolutions.

Presentation of Sedgwick Memorial Medal Award.

Dancing. Refreshments. Informal.

Delegates not attending the dinner are cordially invited to come to the dance which will be held following the program.

FRIDAY, 8:00 A.M.

UNIVERSITY OF MINNESOTA

Breakfast Session—Comstock Room, Palace Hotel

FRIDAY, 9:30 A.M.

DENTAL HEALTH AND STATISTICS SECTIONS

Joint Session—Larkin Hall (Large), Civic Auditorium

Presiding: DAVID B. AST, D.D.S., AND OSWALD K. SAGEN, PH.D.

MANAGEMENT OF DENTAL HEALTH STATISTICS

The Collection and Interpretation of Dental Statistics. A. L. RUSSELL, D.D.S.

An Appraisal of Various Methods Employed in Analyzing Clinical Effectiveness of Caries Inhibitory Agents. JOHN W. FERTIG, PH.D., AND NEAL W. CHILTON, D.D.S.

Management of Epidemiological Dental Data. FERN E. FRENCH.

ENGINEERING AND INDUSTRIAL HYGIENE SECTIONS

Joint Session—Larkin Hall (Small), Civic Auditorium

Presiding: J. WILLIAM FEHNEL.

AIR POLLUTION

Plans and Accomplishments of the International Joint Commission in Controlling Air Pollution. J. R. MENZIES.

Report of the Committee on Air Hygiene. *Chairman,* H. A. WHITTAKER.

The Los Angeles Smog Problem. GORDON M. LARSON.

The Engineering Approach to Cleaner Air for the Community. HAMNETT P. MUNGER.

EPIDEMIOLOGY SECTION

Third Session—Room 405, Civic Auditorium

Presiding: THOMAS FRANCIS, JR., M.D., *Chairman.*

Veterans Administration Tuberculosis Case Finding Survey Program. LEO V. SCHNEIDER, M.D.

Epidemiological Implications of Review of Tuberculosis Cases in the U. S. Navy, 1949. COMDR. SIDNEY A. BRITTEN, MC, USN.

Coccidioidin Sensitivity Among School Children in Phoenix (Skin Test and X-ray Survey). JOHN EMMETT, M.D.

Poliomyelitis Studies with the Lansing Strain in the Midwest. MICHAEL L. FURCOLOW, M.D., AND HERBERT A. WENNER, M.D.

Yaws on Guam: Treatment and Environmental Considerations. COMDR. ROBERT E. ROCK, MC, USN.

FRIDAY, 9:30 A.M.

FOOD AND NUTRITION SECTION

Second Session—Room 409, Civic Auditorium

Presiding: GLENN G. SLOCUM, PH.D., *Chairman.*

NEWER DEVELOPMENTS IN FOOD PROCESSING

(Speakers to be announced.)

HEALTH OFFICERS, MEDICAL CARE, PUBLIC HEALTH EDUCATION, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Polk Hall, Civic Auditorium

PREVENTIVE MEDICINE AND HEALTH EDUCATION IN MEDICAL CARE PROGRAMS

Panel Discussion

Moderator: HUGH R. LEAVELL, M.D.

Health Education and Preventive Medicine—New Horizons in Medical Care. GEORGE ROSEN, M.D.

A Survey of Health Education in Prepayment Plans. MILTON TERRIS, M.D.

Panel Participants:

HELEN CONNORS.
LLOYD FLORIO, M.D.
IRWIN S. NEIMAN, M.D.
IRVING SHAPIRO.
E. RICHARD WEINERMAN, M.D.
LAWRENCE C. WELLS.
HUNTINGTON WILLIAMS, M.D.

LABORATORY SECTION

Third Session—Room 402, Civic Auditorium

Presiding: JOHN T. TRIPP, PH.D., *Vice-Chairman.*

Evaluation of Ten Therapeutic Agents in Experimental Brucellosis. CHARLES M. CARPENTER, M.D., SIDNEY J. KLEIN, PH.D., ERIC L. NELSON, PH.D., BRUCE RAWLINGS, AND CLINTON E. TEMPEREAU, M.D.

Field Trials in Pertussis Immunization. DAVID G. EVANS, M.D., AND CHARLES COCKBURN, M.D.

The Incidence of Different Phases of Shigella sonnei in Acute Cases and Carriers. SARA E. BRANHAM, M.D.

Study on Etiology, Epidemiology, and Antibiotic Therapy of Infantile Diarrhea with Particular Reference to Certain Serotypes of Escherichia coli. ERWIN NETER, M.D., CHARLES R. WEBB, M.D., CLARE N. SHUMWAY, M.D., AND MIRIAM R. MURDOCK.

The Estimation of Vi Antibody Employing Erythrocytes Treated with Purified Antigen. MAURICE LANDY, PH.D., AND ESTHER LAMB.

FRIDAY, 12:30 P.M.

MEETING OF ALL SECTION COUNCILS WITH THE EDITORIAL BOARD

Luncheon Session—Comstock Room, Palace Hotel

FRIDAY, 2:30 P.M.

ENGINEERING SECTION AND CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—Room 403, Civic Auditorium

Presiding: EARL DEVENDORF.

CIVIL DEFENSE

Sanitary Engineering Experiences in the Missouri River Flood. DWIGHT F. METZLER, C.E.

Discussion.

The Sanitary Engineering Aspects of Civil Defense in California. (Speaker to be announced.)

Discussion.

A Local Civil Defense Program from the Health Officer's Viewpoint. (Speaker to be announced.)

Discussion.

FOOD AND NUTRITION SECTION

Third Session—Public Health Auditorium, 101 Grove Street

Presiding: NORMAN JOLLIFFE, M.D.

FOOD AND CIVIL DEFENSE

Discussion Opened by: RUSSELL M. WILDER, M.D.

Food Allowances During Emergency Periods of Food Restriction. ROBERT E. SHANK, M.D.

Therapeutic Nutrition in Burns and Shock in Disaster Feeding. STANLEY M. LEVENSON, M.D.

Special Foods for Emergency Situations. EMIL MRAK, PH.D.

Practical Considerations for Disaster Feeding in a Large Metropolitan Area. ROBERT S. GOODHART, M.D., AND NORMAN JOLLIFFE, M.D.

FRIDAY, 2:30 P.M.

INDUSTRIAL HYGIENE AND MEDICAL CARE SECTIONS

Joint Session—Room 402, Civic Auditorium

Presiding: LEONARD GREENBURG, M.D.

INDUSTRIAL HEALTH AND SOCIAL SECURITY

Industrial Health—Social Problems. SEWARD E. MILLER, M.D.

Workmen's Compensation and Rehabilitation. D. J. GALBRAITH, M.D.

Temporary Disability Insurance. HERBERT M. WILSON.

Health and Welfare Benefits Through Voluntary Insurance. (Speaker to be announced.)

LABORATORY SECTION

Fourth Session—Room 405, Civic Auditorium

Presiding: CHARLES M. CARPENTER, M.D., *Chairman.*

Symposium on Pleuropneumonia-like Organisms. HARRY E. MORTON, SC.D., AND PAUL F. SMITH, PH.D.

PUBLIC HEALTH EDUCATION SECTION

Second Session—Room 404, Civic Auditorium

Presiding: CLAIR E. TURNER, DR.P.H.

HEALTH EDUCATION 'ROUND THE WORLD

Panel Discussion

Moderator: C. MAYHEW DERRYBERRY, PH.D.

(Participants to be announced.)

The San Francisco Committee

Trips and Recreation

The preceding pages present a preview of the content of the scientific sessions of the Annual Meeting. The Program Committee, composed of the thirteen Section Secretaries and others with broad knowledge of public health, is responsible for most of it. The Western Branch and the many related organizations have developed independently the programs of the meetings they are sponsoring.

But the scientific program, distinguished as it is, is only part of the Annual Meeting. The local arrangements, the things to do for education and recreation outside the lecture halls, the hospitality and the atmosphere are planned and provided by the San Francisco Committee, of which the Director of Public Health, Dr. J. C. Geiger, is Chairman, and Dr. George H. Becker, Director of the Bureau of Communicable Diseases, is Co-Chairman.

The Honorable Earl Warren, Governor of California, and the Honorable Elmer E. Robinson, Mayor of San Francisco, are Honorary Chairmen and the Honorary Vice-Chairmen are Dr. William P. Shepard, President of the Association, Dr. Gaylord W. Anderson, President-Elect, Mr. Thomas Brooks, Chief Administrative Officer of San Francisco, and Dr. Wilton L. Halverson, California's Director of Public Health and President of the Western Branch. The list of Vice-Chairmen and members of the sponsoring committee reads like a "Who's Who" in medicine, public health, dentistry, nursing, education, government, and business in the city and the state.

The Subcommittees of the Local Committee assisting Dr. Geiger and their Chairmen are:

Transportation, Hiram Johnson, III
Registration, Easton G. Hecker.
Recreation Trips, William McGarry.
Transportation, W. Lansing Rothschild.
Scientific Trips, C. E. Smith, M.D.
Meeting Rooms, E. C. Sage, M.D.
Entertainment, Garnett Cheney, M.D.
Ladies' Entertainment, Mrs. William W. Newman.
Publicity, Richard L. Chase.
Hospitality, Mrs. Fred Hellman.
Finance, Benjamin Harrison Swig.

SCIENTIFIC TRIPS. Dr. C. E. Smith and his Committee have set up fifteen trips to places of public health interest in and around San Francisco, and seven tours to hospitals and clinics, all to take place on Wednesday afternoon, October 31. This is the afternoon when the Program Committee schedules no meetings. Delegates will be hard pressed to decide which to accept of the many opportunities offered. Take your choice and sign up at the Registration Desk in the Civic Auditorium by four o'clock on Tuesday afternoon!

Trips:

Irwin Memorial Blood Bank of San Francisco Medical Society
Western Communicable Disease Center Laboratory and George Williams Hooper Foundation of Medical Research
The Cutter Laboratories (Biological Laboratory)
California State Health Department Laboratories
Permanente Health Plan (Prepaid Health Plan Center)
Kabat-Kaiser Institute (Vocational Rehabilitation Center for Paraplegics)
United States Naval Damage Center (Atom Bomb Studies)
United States Radiological Defense Laboratory (Atomic Bomb Studies)
San Francisco Garbage Fill and Water Pollution Control Program
San Francisco Sewage Treatment Plants
East Bay Sewage Treatment Plants and Oakland Scavenger Disposal Operation
American Smelting & Refining Company (Industrial Hygiene Studies)
Alameda County Mosquito Abatement District
Stanford Research Institute (Smog Studies)
Western Regional Research Laboratory and Nutrition Research Laboratory

Medical (Hospital-Clinic) Tours:

Langley Porter Clinic (Psychiatric Hospital)
Mt. Zion Psychiatric Out-Patient Clinic
Maimonides Health Center (Chronically Ill Center)
Laboratory of Experimental Oncology
Hassler Health Home (Tuberculosis Sanatorium for the City and County of San Francisco) and
San Mateo County Tuberculosis Sanatorium
Central Offices of the San Francisco Department of Public Health

RECREATION TRIPS. Monday afternoon also presents a problem in selectivity. A long sight-seeing trip, called "San Francisco Tour De Luxe" will attract many. Muir Woods and the Giant Redwoods will prove equally enticing and for those who cannot get away until three o'clock a trip to the San Francisco Museum of Art offers consolation.

For lucky persons with nothing to do on Wednesday, an all day trip to Beaulieu Vineyards and Winery, over the Golden Gate Bridge and through lovely Marin and Sonoma Counties, may well fill the gap.

FOR THE LADIES. Luncheon on Nob Hill at San Francisco's world-famous Fairmont Hotel, followed by a fashion show by the Elizabeth Arden Salon, is featured for Tuesday, October 30. On Thursday those who missed the fashion show earlier in the week may make up for it by attending one at the City of Paris Garden Cafe in San Mateo, with good sight-seeing along the way. Also on Thursday there will be a luncheon at the Art and Garden Center, Walnut Creek. Both these Thursday functions feature sight-seeing, and require about five hours of time.

Mrs. William W. Newman, Chairman of the Ladies Entertainment Committee, extends a hearty welcome to the ladies and their husbands. If school age children come with their parents, she promises a special tour for them. She suggests making advance arrangements for child care with Edwards Baby Sitters, 3114 Geary Street, San Francisco. Thoughtfully she tells the ladies that a suit is the year round wardrobe of San Franciscans for luncheons and trips, but that the evenings are chilly and a warm wrap is necessary.

FOR EVERYBODY. The San Francisco "musts" to do when not otherwise engaged are legion. Among them are the Ferry Building, old-time landmark and "Gateway to the Orient"; Fisherman's Wharf, where the fishing fleet can be seen and some of the best sea food in the world eaten; the International Settlement, the old Barbary Coast of early San Francisco, where eating adventures are unlimited; Coit Tower and Telegraph Hill at sunset for a panoramic view of San Francisco Bay, its two bridges, Treasure Island, and Alcatraz Island; Portsmouth Plaza, center of community life in gold rush days and where Robert Louis Stevenson created many of his sea tales; Chinatown, of course; Golden Gate Park, more than one thousand acres of beauty extending for three and one-half miles to Ocean Beach; Cliff House with its perfect view of the Pacific and the seals. And no one would think of visiting San Francisco without riding on the cable cars, without a trip to Twin Peaks, and without calling at the Top o' the Mark, Mark Hopkins Hotel, and the Starlite Roof, Hotel Sir Francis Drake.

Other Features of the Annual Meeting

TRAVEL to San Francisco can be made a highly rewarding feature of the 79th Annual Meeting if reservations are made on the Special Train the Association is sponsoring. The all-expense tour was announced in the *News Letter* some weeks ago and followed up by detailed itineraries mailed to members in the states along the route. It includes one day in the Grand Canyon National Park, two days in Los Angeles, two days in Yosemite National Park, and six days in San Francisco. In addition to the sight-seeing, plus values are de luxe travel and hotel accommodations, pleasant companions, low cost, and no personal responsibility on the part of the traveler. For complete information, consult the A.P.H.A. office, at 1790 Broadway, New York 19, N. Y., or Mrs. Ioan Beckham, New York Central System, 466 Lexington Avenue, New York 17, N. Y.

THE JOB CENTER. Under the auspices of the Association's Vocational and Counseling Service, aided and abetted by representatives of the Institute of Inter-American Affairs and of the Public Health Service, a Job Center will be maintained in the Civic Auditorium, which is headquarters for the meeting. Information about positions available in and out of the country will be supplied, candidates for jobs will be interviewed, and wherever possible prospective employers and employees will be brought together.

THE PROFESSIONAL EXAMINATION SERVICE. Under its new name, the Association's erstwhile Merit System Service will provide consultation service on problems of personnel selection and administration. Its headquarters will be among the Scientific Exhibits in the Civic Auditorium.

THE MOTION PICTURE THEATRE. Operating throughout the meeting, the Motion Picture Theatre in the Civic Auditorium is the place to go to view the newer health films.

THE TECHNICAL EXHIBIT. More than 100 exhibits sponsored by outstanding business organizations will bring to public health workers the latest information about products, apparatus, equipment, and services that can be useful to them in their work. Commercial suppliers render a real service to the public health profession by sending their exhibits from all parts of the country for convenient inspection at the Annual Meeting. Many of their representatives are members of the Association, thoroughly familiar with current needs and problems. A Directory of Exhibits is published in the back of this *Journal.*

THE SCIENTIFIC EXHIBIT. Health departments and other divisions of government, voluntary agencies, schools of public health and of medicine contribute to the Scientific Exhibit. Many delegates consider this feature of the Annual Meeting to be as instructive as the scientific program. The Committee on Scientific Exhibits will evaluate and score the exhibits, citing those attaining the highest scores.

For Convenience in Making Personal Plans

HOTEL RESERVATIONS. Hotel reservations should be made through the Housing Bureau on the form published in this and other issues of the *Journal.*

MEETING HEADQUARTERS. Headquarters for the 79th Annual Meeting is the Civic Auditorium, 55 Grove Street. The Registration Desk opens at 9.00 A.M. on Monday morning, October 29.

ADVANCE REGISTRATION. Opportunity is given to register in advance by mail. The form for so doing is published in this and other issues of the *Journal.*

AIR TRAVEL. Mrs. Alexander C. Stevens, Special Representative, American Airlines, 122 East 42nd Street, New York 17, N. Y., will be glad to provide information on schedules and rates on her own or any other airline.

ASSOCIATION NEWS

SEVENTY-NINTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
SAN FRANCISCO, CALIF., OCTOBER 29–NOVEMBER 2, 1951

APPLICANTS FOR FELLOWSHIP

In accordance with the By-laws of the Association, the names of applicants for Fellowship are officially published herewith. They have requested affiliation with the Sections indicated. Action by the various Section Councils, the Executive Board (acting on unaffiliated applications), the Committee on Eligibility, and the Governing Council will take place during the San Francisco Annual Meeting.

Health Officers Section

Charles V. Akin, M.D., Director, Clark-Wayne Health Dept., Shubuta, Miss.

C. Earl Albrecht, M.D., Commissioner of Health, Alaska Dept. of Health, Juneau, Alaska

Charles P. Anderson, M.D., Deputy Commissioner, Detroit Dept. of Health, Detroit, Mich.

Gordon L. Anderson, M.D.C.M., D.P.H., Director and Medical Officer of Health, Lambton Health Unit, Sarnia, Ont., Canada

John C. Ayres, M.D., M.P.H., Director, Division of Alcoholism, State Dept. of Public Health, Boston, Mass.

J. Howard Beard, Jr., M.D., M.P.H., Deputy State Health Officer, State Health Dept., Annapolis, Md.

Otto L. Bettag, M.D., Tuberculosis Control Officer and Medical Director, Municipal Tuberculosis Sanitarium, Chicago, Ill.

Bernard E. Bolotoff, M.D., Health Officer, Rockford, Ill.

Malcolm A. Bouton, M.D., M.P.H., Health Commissioner, Schenectady City Health Dept., Schenectady, N. Y.

Vincent D. Bove, M.D., M.P.H., Medical Officer, Division of Communicable Diseases, Bureau of Health, Philadelphia, Pa.

Robert H. Broad, M.D., M.P.H., Commissioner of Health, Ulster County Health Dept., Kingston, N. Y.

Walter J. Broad, M.D., M.S.P.H., Health Officer, McLean County Health Dept., Bloomington, Ill.

John M. Byers, M.D., M.P.H., Health Officer in charge of Tuberculosis Control and Consultant in Tuberculosis, State Dept. of Health, Baltimore, Md.

Holland M. Carter, M.D., M.P.H., Health Officer and Director, Colleton County Health Dept., Smoaks, S. C.

Terrell O. Carver, M.D., M.P.H., Director, Division of Preventive Medicine, State Dept. of Public Health, Boise, Idaho

Aubrey Y. Covington, M.D., M.P.H., Health Officer, Bradford-Clay-Union County Health Dept., Starke, Fla.

Horace DeLien, M.D., Associate Chief, Branch of Health, Bureau of Indian Affairs, Washington, D. C.

Morley R. Elliott, M.D., D.P.H., Director of Health Services, Provincial Dept. of Health and Public Welfare, Winnipeg, Man., Canada

Lt. Col. Morris Fiterman, M.C. (M.D., M.P.H.), Division Surgeon, 47th Infantry Division, Camp Rucker, Ala.

John T. Foley, M.D., M.P.H., Director of Medical Services, Boston Health Dept., Boston, Mass.

Nicholas R. Frankovelgia, M.D., M.P.H., Health Officer, Stickney Township Public Health Dist., Stickney, Ill.

F. Robert Freckleton, M.D., M.P.H., Health Commissioner, Columbia County Health Dept., Hudson, N. Y.

Earle C. Gates, M.D., M.P.H., Health Officer, Chesterfield County Health Dept., Chesterfield, Va.

Joseph L. Gayton, M.D., D.P.H., Director and Medical Health Officer, Victoria-Esquimalt Union Board of Health, Victoria, B. C., Canada

Edward Gerner, Health Officer, Dept. of Health, Orange, N. J.

John W. Gilmore, M.D., Health Commissioner, City-County Health Dept., Wheeling, W. Va.

Israel Gitlitz, M.D., M.P.H., (formerly Senior Field Medical Officer and Senior Hospital Medical Officer, U. S. Indian Service), Bronx, N. Y.

Ollie M. Goodloe, M.D., M.P.H., Health Commissioner, Columbus Dept. of Health, Columbus, Ohio

Stanley S. Greenfield, M.D., M.P.H., Consultant in Cardiology, Division of Physically Handicapped Children, New York City Health Dept., Brooklyn, N. Y.

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Unaffiliated

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Bertrand Beilemare, M.D., M.P.H., Special Adviser to Ministry of Labor and Workmen's Compensation Commission of Quebec, Quebec, Que., Canada

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Ray E. Brown, M.S., Director, Graduate Program in Hospital Administration, University of Chicago, Chicago, Ill.

Earl C. Chamberlayne, D.V.M., D.V.P.H., Director of Food Control, Manitoba Dept. of Health and Public Welfare, Winnipeg, Man., Canada

Mary F. Champlin, M.P.H., Executive Secretary, Health Division, Health and Welfare Federation of Allegheny County, Pittsburgh, Pa.

Roy E. Dickerson, LL.M., Executive Secretary, Cincinnati Social Hygiene Society, Cincinnati, Ohio

Eldon L. Eagles, M.D., D.P.H., Divisional Medical Health Officer, Western Division, Provincial Dept. of Public Health, Yarmouth, N. S., Canada

Gunnar Gundersen, M.D., Surgeon in General Practice, and Member, State Board of Health, LaCrosse, Wis.

Marian H. Hosford, M.A., Instructor in Education, Teachers College, Columbia University and New York University, New York, N. Y.

J. Rex James, Administrative Officer, Missouri Division of Health, Jefferson City, Mo.

Jean B. R. Koupal, M.D., M.S.P.H., Staff Physician, Toledo State Hospital, Toledo, Ohio

Alfred C. LaBoccetta, M.D., M.P.H., Supt. and Medical Director, Philadelphia Hospital for Contagious Diseases, Philadelphia, Pa.

Gerald M. Lacerre, B.C.E., Health Inspector and Supervisor, New York City Health Dept., New York, N. Y.

James Lieberman, D.V.M., M.P.H., Asst. Chief, Special Projects Section, Bureau of State Services, U. S. Public Health Service, Washington, D. C.

Don Longfellow, M.D., M.P.H., Chief, Preventive Medicine Division, Office of Surgeon General, U. S. Army, Washington, D. C.

Mrs. Marty Mann, Executive Director, National Committee on Alcoholism, New York, N. Y.

Alexander S. O'Hara, Regional Consultant in Sanitation, Ontario Dept. of Health, Toronto, Ont., Canada

Cornelius J. A. Paule, M.D., M.S.P.H., Supt. of Preventive Medicine, Toledo Board of Health, Toledo, Ohio

M. N. Rao, M.B.B.S., Dr.P.H., Asst. Professor of Physiological and Industrial Hygiene, All India Institute of Hygiene and Public Health, Calcutta, India

Herbert Ratner, M.D., Commissioner of Health, Dept. of Public Health, Oak Park, Ill.

William A. Smith, M.D., Director, Tuberculosis Section, State Board of Health, Raleigh, N. C.

Donald M. D. Thurber, A.B., Executive Director, Governor's Study Commission on the Deviated Criminal Sex Offender, Grosse Pointe, Mich.

Leo J. Wade, M.D., Medical Director, Esso Standard Oil Co., New York, N. Y.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

John R. Allanach, M.D., D.P.H., 321 Orange, Woodstock, N.B., Canada, District Medical Health Officer, Dept. of Health and Social Services

Egon G. H. Bendel, M.D., UNRWAPR, P. O. Box 484, Amman, Jordan, District Medical Officer, United Nations Relief and Works Agency for Palestine Refugees

Forbes H. Burgess, M.D., RFD No. 5, Frederick, Md., Deputy State Health Officer, State Dept. of Health

Aaron W. Christensen, M.D., M.P.H., 730 17th St., 9 Equitable Bldg., Denver 2, Colo., Regional Medical Director, USPHS Region IX

Robert S. Cowles, M.D., 214 North Main, Greeneville, Tenn., Health Officer, Greene County Health Dept.

John J. Craven, M.D., 6 Terrace Apts., Johnson City, Tenn., Director, Washington County Health Dept.

Stephen Falkland, M.D., UNRWA Hqs., UNESCO Bldg., Beirut, Lebanon, Deputy Chief Medical Officer, United Nations Relief and Works Agency for Palestine Refugees

Leo C. Harris, Sr., M.D., Harris Clinic, Lawrenceburg, Tenn., Director, Lawrence County Health Dept.

P. M. Huggin, M.D., 611 Kesterson Road, Knoxville, Tenn., Medical Director, East Tennessee Tuberculosis Hospital

Lucas L. Kulczycki, M.D., Box 128, Swan River, Manitoba, Canada, Medical Director, Swan Valley Health Unit, Government of Manitoba

F. John G. Lishman, M.B., D.P.H., Rosebud Health Unit, Didsbury, Alberta, Canada, Medical Officer of Health

Ernest Mastromatteo, M.D., D.P.H., Box 10, Virden, Manitoba, Canada, Medical Director, Virden Local Health Unit

Ruth M. Moldenhauer, M.D., Copiah County Health Dept., Hazlehurst, Miss., Director

C. R. Naidu, M.B., D.P.H., Health Dept., Municipal Corp., Darulshafa, Hyderabad, Deccan, India, Medical Officer of Health

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John N. R. Scatliff, M.B., Red River Health Unit, Steinbach, Manitoba, Canada, Director

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David M. Witter, D.D.S., State Dept. of Health, Pierre, S. D., Director, Division of Dental Health

Medical Care Section

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Elizabeth Lewton, M.S., 1275 Stanyan St., San Francisco 17, Calif., Mental Health Consultant, State Dept. of Public Health

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HOTEL RESERVATION FORM

MAIL TO: A.P.H.A. Housing Bureau
Room 200, 61 Grove Street
San Francisco 2, Calif.

Single rooms are very scarce. Please indicate if you would be willing to share a twin-bedded room with another member.
Yes ..... No .....

PLEASE MAKE RESERVATIONS NOTED BELOW:

First Choice ..... Hotel
Second Choice ..... Hotel
Third Choice ..... Hotel

Arrival: ....., at ..... a.m. ..... p.m.
Departure: ....., at ..... a.m. ..... p.m.

..... Single room @ $ .....
..... Double room @ $ .....
..... Twin-bedded room @ $ .....
..... Parlor, bedroom suite @ $ .....

NAMES OF ALL OCCUPANTS:

.....
.....
.....

ADDRESSES:

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.....
.....

CHECK FOR $..... (MADE PAYABLE TO A.P.H.A. HOUSING BUREAU) IS ENCLOSED TO BIND THIS RESERVATION.

MAIL CONFIRMATION TO: Signed: .....

Address: .....
City Zone State

A STAMPED, SELF-ADDRESSED ENVELOPE WOULD BE APPRECIATED.

79TH ANNUAL MEETING

San Francisco, Calif., Oct. 29–Nov. 2, 1951

A HOUSING BUREAU has been organized for the 79th Annual Meeting of the A.P.H.A. in San Francisco, October 29 to November 2. Since all requests for rooms are handled in chronological order, it is recommended that you send in your application as quickly as possible.

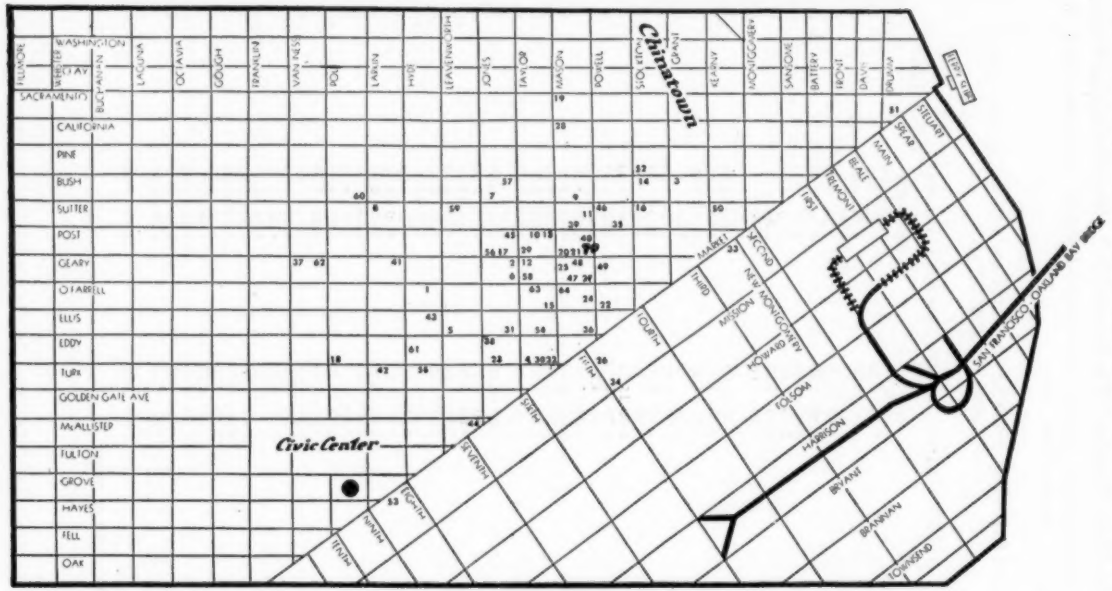
PLEASE COMPLETE THE APPLICATION FORM ON PAGE 1192 GIVING *ALL* INFORMATION REQUESTED.

HOTELS HOLDING ROOMS FOR A.P.H.A. AND RATES.

Map	Hotel	Single	Double Rooms: Double Bed	Double Rooms: Twin Beds
1	Alexander Hamilton *	$5.00–10.00	$ 6.00–10.00	$ 7.00–10.00
2	Bellevue *	5.00– 6.00	7.00– 8.00	7.00– 9.00
3	Beverly Plaza	4.50– 6.00	6.50– 8.00	6.50– 8.00
57	Biltmore	4.00–	5.00	6.00
4	Brayton	2.50– 3.00	3.00– 4.00	4.50– 5.00
6	Californian *	4.00– 5.80	6.00– 7.30	6.50– 8.30
7	Canterbury	4.00– 5.00	6.00	7.00– 8.00
8	Carlton	3.00– 3.50	5.00– 5.50	6.00
9	Cartwright	4.00– 5.00	6.00	7.00
10	Cecil	4.00– 5.00	5.00	6.50– 7.00
11	Chancellor	4.50–	6.00	7.00
12	Clift *	7.00–12.00	9.00–15.00	10.00–18.00
59	Commodore	4.00– 5.00	6.00– 7.50	7.00– 8.50
15	Crest	3.00– 4.50	4.00– 5.50	5.50– 6.50
16	Devonshire *	4.00–	5.00	6.00
16	Drake Wiltshire *	5.00– 6.00	6.00– 7.00	8.00– 9.00
17	El Cortez	3.50– 6.00	4.50– 7.00	6.00– 8.00
18	Embassy	3.50–	4.00	5.00
19	Fairmont *	8.00–13.00	11.00–16.00	11.00–16.00
20	Fielding	4.00– 6.00	5.00– 8.00	6.00– 8.00
21	Franciscan	2.50– 4.00	4.00– 5.00	5.50– 6.00
22	Golden State	3.00– 3.50	4.00– 5.00	6.00
23	Governor	3.00– 3.50	4.00– 5.00	6.00
60	Harcourt	3.00– 3.50	3.50– 4.00	5.00
24	Herbert	3.50– 4.00	4.00– 5.00	5.00– 6.00
25	King George	3.00– 4.00	4.00– 5.00	5.00– 6.00
61	Lafayette	4.00–	5.00	6.00
62	Lombard	4.00– 6.00	5.00– 8.00	6.00– 8.00
27	Manx *	3.50– 4.00	4.50– 5.00	6.50
28	Mark Hopkins *	8.00–11.00	11.00–15.00	11.00–15.00
31	Olympic *	3.50– 6.00	4.50– 6.00	6.00– 8.00
32	Oxford	3.00– 4.00	4.00– 6.00	6.00
33	Palace *	6.00–12.00	9.00–14.00	10.00–15.00
63	Palomar	3.50– 5.00	4.00– 6.00	4.50– 6.00
34	Pickwick *	3.50– 5.00	4.50– 6.00	5.50– 6.50
35	Plaza	5.00– 6.00	6.50– 8.50	7.00– 9.00
38	Roosevelt	3.00– 4.00	3.50– 5.00	6.00
39	St. Andrews	3.00–	3.50– 4.00	5.00
70	St. Francis *	6.00–14.00	8.00–14.00	10.00–18.00
42	Senate	3.00– 4.00	4.00– 5.00	5.00– 6.00
43	Senator	3.00– 3.25	3.50– 3.75	4.50– 5.00
44	Shaw	3.50– 4.00	4.50– 5.00	6.00– 6.50
45	Sheldon	3.00– 4.00	4.00– 5.50	5.50
46	Sir Francis Drake *	6.50–11.00	8.50–13.00	10.50–15.00
47	Spaulding	3.00– 4.00	4.00– 5.00	5.00– 6.00
48	Stewart	3.50– 5.00	5.00– 6.00	6.00– 9.00
49	Stratford	3.00– 4.00	3.50– 6.00	5.00– 6.00
50	Sutter *	3.00– 4.50	4.50– 7.00	6.00– 8.00
64	Travelers	3.50– 4.00	5.00– 5.50	6.00
52	Victoria	3.50– 4.00	4.50– 5.00	5.00– 6.00
53	Whitcomb *	4.50– 7.00	6.00–10.00	7.00–10.00
55	Y.M.C.A. Hotel	1.30 up		2.60 up
56	York	3.00– 4.00	3.50– 5.00	5.00– 6.00

* Parlor suites available. Rates on request.

Street Plan of San Francisco Showing Location of Housing Bureau Hotels



Hotel Reservation form is on page 1192. Please indicate your first, second, and third choice hotel. Single rooms are limited.

All reservations will be confirmed if requests are received not later than October 15.

ALL REQUESTS MUST BE ACCOMPANIED BY A DEPOSIT CHECK of $5 per person, or $10 per room, made PAYABLE TO THE A.P.H.A. HOUSING BUREAU. The deposit holds the room on your arrival day, regardless of the hour, and will be credited to your account. PLEASE DO NOT SEND U. S. POSTAL NOTES OR CASH.

Key

1 Alexander Hamilton
2 Bellevue
3 Beverly Plaza
57 Biltmore
4 Brayton
5 Cadillac
6 Californian
7 Canterbury
8 Carlton
9 Cartwright
58 Casa Nova
10 Cecil
11 Chancellor
12 Clift
59 Commodore
14 Court
15 Crest
16 Devonshire
16 Drake Wiltshire
17 El Cortez
18 Embassy
19 Fairmont
20 Fielding
21 Franciscan
22 Golden State
23 Governor
60 Harcourt
24 Herbert
28 Huntington
25 King George
61 Lafayette
26 Lankershim
62 Lombard
27 Manx
28 Mark Hopkins
30 New Dalt
31 Olympic
32 Oxford
33 Palace
63 Palomar
34 Pickwick
35 Plaza
36 Powell
37 Richelieu
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ADVANCE REGISTRATION

FOR 79TH ANNUAL MEETING

AMERICAN PUBLIC HEALTH ASSOCIATION

SAN FRANCISCO, CALIF., OCTOBER 29–NOVEMBER 2, 1951

Members and Fellows of the American Public Health Association and other health workers who are not members who wish to register in advance for the San Francisco Annual Meeting are cordially invited to do so.

Each person should fill in the coupon below or a facsimile thereof and mail it with the registration fee to the Central Office. We will prepare for your attendance in advance and you can then pick up your program and badge without delay at a special section as soon as you arrive at Registration Headquarters in the Civic Auditorium. At that time your registration will have been recorded and it will only be necessary for you to supply your local hotel and room number to complete the registration procedure. If you know now at which hotel in San Francisco you will be staying, please add this information below.

Advance registrations cannot be accepted and recorded if received in Central Office after October 1, 1951.

Return to American Public Health Assn.,
1790 Broadway, New York 19, N. Y.

I wish to register in advance for the San Francisco Annual Meeting.

NAME .....

BUSINESS ADDRESS .....

CITY & STATE .....

TITLE OF POSITION .....

HOTEL IN SAN FRANCISCO .....

Non-member of A.P.H.A. Registration fee $4. ☐

Member of A.P.H.A. Registration fee $3. ☐

Fellow of A.P.H.A. Registration fee $3. ☐

Please send check or money order for amount shown

If you will be accompanied by your wife (or husband) or other dependent member of your family who is entitled to free registration, please list the name and address below:

NAME ..... RELATIONSHIP TO DELEGATE .....

STREET ADDRESS ..... CITY & STATE .....

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Physician or Pediatrician interested in public health, to assist director of large rural health department in development and carrying out of a very complete child health program. If interested, for specific information write: Donald A. Cowan, M.D., Chippewa-Luce-Mackinac County Health Department, Sault Ste. Marie, Mich.

Public Health Officer (P-7) for County of Hawaii—Salary $690 to $773.33, plus $25 monthly bonus. Three years of experience as public health physician, following graduation from a medical school of recognized standing including or supplemented by one year of internship in a recognized general hospital, and supplemented by one year of graduate training in public health.

Chief, Bureau of Maternal and Child Health and Crippled Children—Salary $865, plus $25 monthly bonus. (1) Four years of specialized experience in pediatrics, 2 years of specialized training in pediatrics, and certification by the American Board of Pediatrics; or (2) three years of specialized experience in obstetrics, 3 years of specialized training in obstetrics, and certification by the American Board of Obstetrics. Write air mail to: President, Board of Health, P.O. Box 3378, Honolulu 1, Hawaii.

Medical Director—must be eligible for Wisconsin medical license and have training and/or experience in public health administration, preferably an M.P.H. degree. Generalized program; excellent quarters; laboratory; exceptional staff of 16. Salary $9,000, plus travel, vacation, etc. Active program could be extended further by a capable director. Opportunity for an M.D. with initiative. Director will have backing and support of a strong and interested Board. Write: Eau Claire City-County Health Department, Safety Building, Eau Claire, Wis.

Public Health Physician as Health Officer of a newly established county health department. Salary range $7,200–$9,000. Qualified health officer may start above minimum. Write: G. Alzeno, D.D.S., President, Jo Daviess County Board of Health, Stockton, Ill.

Deputy Health Commissioner with training or experience in public health. Initial salary up to $8,500 per year and traveling. Write: Saginaw County Department of Health, Saginaw, Mich.

Director, Maternal and Child Health and Crippled Children's Section—Graduate training in the field of public health and obstetrics or pediatrics preferred. Salary range $8,496 to $10,188; usual Merit System provisions for sick and annual leave with pay and retirement.

District Health Officer—for Lewis County, State of Washington. Minimum qualifications include 3 years of experience and graduate work in the field of public health. Salary range $8,496–$10,188, with usual Merit System provisions for sick and annual leave with pay and retirement.

Head of Public Health Statistics Section—Three years experience in public health statistics in addition to 1 year of graduate training or 4 years of experience beyond a bachelor's degree. Salary range $5,160–$6,192. Usual Merit System provisions for sick leave and annual leave with pay and retirement.

Write: Dr. J. A. Kahl, State Director of Health, 1412 Smith Tower, Seattle, Wash.

Staff Nurse—generalized program. Salary based on education and experience. Car essential. Write: Director, West Essex Public Health Nursing Association, 573 Bloomfield Avenue, Verona, N. J.

Public Health Nurse for staff position. Merit System; 2 weeks vacation with sick leave accumulative to 90 days. Salary $2,800. Write: Health Commissioner, Medina County Department of Health, Court House, Medina, Ohio.

Public Health Nurse for staff position. Merit System; 2 weeks vacation with sick leave accumulative to 90 days. Salary depends on experience and qualifications. Write: Health Commissioner, Wayne County Health Center, Wooster, Ohio.

Public Health Physician III—Pediatrics. For highly responsible professional and administrative medical work in planning and directing an extensive program of public health services on a state-wide basis; for furnishing consultative and advisory services to physicians and public health officials; and for effecting the distribution of federal and state funds to local

health districts. Supervision over medical, technical, and clerical staffs. Applicants must be certified by the American Academy of Pediatrics. Starting salary $7,920. Write: Division of Child Hygiene, State Department of Health, Columbus 15, Ohio.

Medical Director for Tuberculosis Sanitarium—with considerable progressively responsible experience in the medical and surgical treatment of tuberculosis, some of which shall have been in an administrative capacity; graduation from a school of medicine of recognized standing. For complete information, write: K. N. Gardner, Personnel Officer, Bureau of Personnel, Norfolk, Va.

Public Health Physician—Director of Tuberculosis Control Division of County Health Department. Salary $9,608 to $10,208.

Public Health Sanitarian I and II. Salary $3,808 to $4,528; and $4,528 to $5,248.

Employees in the above positions receive paid vacations, sick leave, automatic salary increases, and participation in a liberal retirement program.

For information or application, write: Wayne County Civil Service Commission, 2200 Cadillac Tower, Detroit 26, Mich.

Health Officer and Director for Topeka City-Shawnee County Health Department. Salary range $635–$775 per month, with liberal travel allowance. Qualified individual can start above minimum. For complete information, write: Dr. C. K. Schaffer, Chairman, Advisory Board of Health, Central Building, Topeka, Kans.

Opportunity for **Physicians** with special interest or training in pediatrics or public health available immediately in Milwaukee. Services to infants, preschool, and school children annually. Appointments made under Civil Service. Forty hour week, annual vacation, and retirement benefits. Salary range $5,907 to $9,207. Write: Dr. E. R. Krumbiegel, Commissioner of Health, Milwaukee 2, Wis.

Public Health Nurses for staff positions in a generalized program in rural areas and city-county health units in Wyoming. Starting salaries $225–$280 per month, depending on qualifications and experience. Also, positions for **Supervisors** and **Director of Nursing Service.** Merit System, retirement plan, regular annual increments, career opportunities. Write: Division of Public Health Nursing, State Department of Public Health, Cheyenne, Wyo.

Staff nurses wanted for aggressive city-county health department. Public health nursing preparation required. Program generalized; 10 nurse staff. Salary $3,000 to $3,600, depending on qualifications and experience. Must furnish own car; mileage allowance 6¢ per mile. Write: Director of Nurses, Health Department, Kalamazoo, Mich.

Public Health Physician for Commissioner of Health of Cattaraugus County, N. Y. Candidates must be licensed to practise medicine in New York State, must have completed a course in public health of at least 1 scholastic year in an approved university, and must have had at least 1 year of satisfactory full-time experience in general public health work. Unit is 28 years old, and has 31 employees; population 78,000. State retirement system; car furnished. Salary $8,500. Write C. L. Bockmier, President, Cattaragus County Board of Health, 302 Laurens Street, Olean, N. Y.

Health Officer for new tri-county health department in southeastern Illinois which will begin operation Jan. 1, 1952. Candidates should be prepared to create and maintain good program of local health services; have capacity for excellent public and human relations. Real opportunity for creative work. Salary to $11,000, depending on experience and training. Write: Mr. Horace Brown, Secretary, Gallatin-Saline-White Tri-County Board of Health, Shawneetown, Ill.

Health Officer to direct combined Winnetka-Glencoe-Kenilworth Health Department, located in North Shore suburban area of Chicago. Nonpolitical administration; nationally recognized school system. Beginning salary $7,500 and up, depending on qualifications. Write: H. L. Woolhiser, Village Manager, Village Hall, Winnetka, Ill.

POSITIONS WANTED

Bacteriologist, B.S., M.S., Ph.D. (in Food and Sanitary Bacteriology); male; wishes position in water, sewage, or industrial bacteriology; will consider position in either a city or state water, food, or dairy laboratory. Prime interests, water, sewage, food and dairy bacteriology; 11 years experience in laboratory work and supervision; also experienced in food plant work and sewage treatment. Write: **Box L-20,** Employment Service, A.P.H.A.

Sanitary Chemist with 10 years of water purification experience. domestic and in-

dustrial, including: research, development, control and analytical work. Desires position with state, municipal, or industrial water department. Write: **Box S-8**, Employment Service, A.P.H.A.

Health Education Consultant, M.P.H., credits toward Ph.D., many years experience in health education; male, veteran; ability to organize, plan, and carry work to completion. For further information, write **Box HE-37**, Employment Service, A.P.H.A.

Medical Vacancies in New York State Health Department

The New York State Health Department has vacancies in the following medical positions and invites applications:

1. **Assistant District Health Officer**
   Salary—$6,991 to $7,804. Vacancies—14.
   Minimum Qualifications—3 years satisfactory full-time experience in public health, or 6 months satisfactory full-time experience and a degree in public health from an approved School of Public Health.

2. **Epidemiologist**
   Salary—$6,991 to $7,804. Vacancies—2.
   Minimum Qualifications—3 years satisfactory full-time experience or 6 months satisfactory full-time experience plus a degree from an approved School of Public Health.

3. **Senior Tuberculosis Control Physician**
   Salary—$6,991 to $7,804. Vacancies—5.
   Minimum Qualifications—4 years satisfactory full-time medical experience, of which 2 years must be in full-time specialized tuberculosis work including 1 year of clinical experience in a tuberculosis hospital; or equivalent satisfactory clinical tuberculosis experience and public health training or experience.

4. **District Health Officer**
   Salary—$7,916 to $9,610. Vacancies—1.
   Minimum Qualifications—4 years satisfactory full-time experience in a responsible public health position, or 2½ years of such experience and a degree from an approved School of Public Health.

5. **Associate Tuberculosis Control Physician**
   Salary—$8,594 to $9,610. Vacancies—6.
   Minimum Qualifications—6 years satisfactory full-time medical experience, 1 year of which must have been in a responsible public health position and 3 years in tuberculosis work, including 1 year of clinical experience in a tuberculosis hospital. A degree from an approved School of Public Health will be accepted in lieu of 2 years of the full-time experience, with the exception that the applicant must have at least 1 year of clinical tuberculosis experience.

6. **Associate Physician in Maternal and Child Health**
   Salary—$8,594 to $9,610. Vacancies—3.
   Minimum Qualifications—6 years satisfactory full-time medical experience, of which the equivalent of 1 year must have been in public health and 3 years must have been full-time specialized experience in pediatrics or obstetrics. A degree from an approved School of Public Health may be accepted in lieu of 2 years of the full-time medical experience.

7. **Associate Physician in Venereal Disease Control**
   Salary—$8,594 to $9,610. Vacancies—1.
   Minimum Qualifications—6 years full-time clinical experience, 1 year of which must have been in public health and 3 years in clinical or public health specialization in the field of venereal disease control.

8. **Associate Physician in Medical Rehabilitation**
   Salary—$8,594 to $9,610. Vacancies—1.
   Minimum Qualifications—6 years full-time medical experience, 1 year of which must have been in public health and 3 years either in public health administration, including a medical rehabilitation program or clinical specialization

in pediatrics, internal medicine, orthopedics, or physical medicine. A degree from an approved School of Public Health will be accepted in lieu of 2 years of the required experience.

9. **Principal Tuberculosis Control Physician**
Salary—$9,610 to $11,303. Vacancies—1.
Minimum Qualifications—7 years satisfactory full-time medical experience, 1 year of which must have been in public health and 5 years in specialized tuberculosis experience, including 1 year of clinical experience in a tuberculosis hospital.

10. **Hospital Medical Management Advisor**
Salary—$9,610 to $11,303. Vacancies—1.
Minimum Qualifications—7 years satisfactory full-time medical experience, of which 5 years must have been full-time specialized tuberculosis experience, including 3 years clinical experience in a tuberculosis hospital; and 2 years must have involved major administrative responsibilities.

In addition to the minimum qualifications listed above, each candidate must be a graduate of an approved medical school, must have completed a satisfactory internship of 1 year or the accelerated 9 months internship, and must be eligible for license to practise medicine in New York State.

In each instance, the qualifications as listed above may be satisfied by equivalent training or experience, which can be evaluated at the time of submission of application.

The applicant need not be a resident of New York State and for many of the positions need not be a citizen of the United States. Details concerning this may be obtained upon application. Those interested should write to the New York State Department of Health, Gov. Alfred E. Smith State Office Building, Albany 1, N. Y.

Advertisement

All communications should be sent to Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE FOR THE FOLLOWING—(a) COMMISSIONER OF HEALTH; New York. (b) DIRECTOR OF HEALTH PROGRAM; public schools; large city, California. (c) REGIONAL CONSULTANTS; newly created appointments; one of country's most important medical care programs; East, Southeast, North Central, Midwest, Southwest; $12,000–$15,000. (d) DIRECTOR, STUDENT HEALTH DEPARTMENT; teaching opportunity; Rocky Mountain state. (e) ASSISTANT MEDICAL DIRECTOR; city-county department; attractive location; Pacific Northwest. (f) PUBLIC HEALTH NURSE ADMINISTRATOR to direct program of one of the country's leading philanthropic organizations; newly created post; woman of outstanding qualifications, well known in public health field, required; East. (g) MATERNAL and CHILD HEALTH NURSE CONSULTANT; STAFF and COUNTY HEALTH NURSES; beautiful state, West; expansion program. (h) PUBLIC HEALTH COORDINATOR; faculty appointment; university school of nursing. (i) DIRECTOR OF NURSES to supervise all nursing activities of one of America's major industrial companies in Asia; outstanding person required; $8,600, which includes living allowance. (j) PUBLIC HEALTH NURSE to direct student health service; fairly large hospital; Pacific Northwest. (k) STAFF NURSES; generalized program including school nursing; California. (l) SENIOR and STAFF NURSES; U. S. dependency; starting salaries, $5,724 and $5,028 respectively. (m) PUBLIC HEALTH NUTRITION CONSULTANT; university center; Midwest (n) HEALTH EDUCATOR; metropolitan department; university medical center; large city, West.
Please direct all inquiries to BURNEICE LARSON, THE MEDICAL BUREAU, PALMOLIVE BUILDING, CHICAGO. (If you will write for our ANALYSIS FORM, we shall prepare an individual survey of opportunities which meet your requirements.)

WANTED—OPPORTUNITIES FOR THE FOLLOWING—(a) PUBLIC HEALTH PHYSICIAN; M.P.H.; Diplomate, American Board of Preventive Medicine and Public Health; several years director, metropolitan department of health. (b) PUBLIC HEALTH NURSE is available for executive appointment; M.A. (Education), Ph.D.; 12 years experience as public health nurse administrator. (c) HEALTH EDUCATOR; M.S.P.H., eastern university; 3 years educator, city-county health department. (d) INDUSTRIAL HYGIENIST; M.S., Harvard; five years hygienist, USPHS; 8 years chief, state department industrial hygiene and assistant professor of public health, university medical school. (e) SANITARY ENGINEER; B.S. (Chemical Engineering); 14 years sanitary engineer, state health department.
Please direct all inquiries to BURNEICE LARSON, THE MEDICAL BUREAU, PALMOLIVE BUILDING, CHICAGO.

NEWS FROM THE FIELD

ANOTHER STATISTICAL AREA CHARTED

Comparable statistics among the 48 states on birth weight of premature births and on neonatal mortality is the goal of recommendations released in December, 1950, by a number of coöperating national organizations. *Recommendations for Developing Comparable Statistics on Prematurely Born Infants and Neonatal Mortality* is the work jointly of the Public Health Conference on Records and Statistics, the Association of Maternal and Child Health and Crippled Children Directors, and the Children's Bureau and the National Office of Vital Statistics of the Federal Security Agency.

Its introduction points out that the marked reduction in infant mortality over the past few decades has been greater among the group surviving the first few days of life than among the newborn. The new recommendations, if carried out, will make it possible to intensify investigation of factors related to immaturity, which is associated with most of the deaths in early infancy. The eight page pamphlet may be secured from either the Children's Bureau or the National Office of Vital Statistics, Washington 25, D. C.

WHAT OF THE ECA HEALTH MISSIONS?

A team of five officials of the International Health Division of the Public Health Service has recently been in Bangkok making a firsthand study of the public health programs of the Special Technical and Economic Missions in Southeast Asia established by the Economic Cooperation Administration. On August 6–11, they had a conference with chiefs of the public health sections of the STEM missions in Burma, Thailand, Indo-China, Indonesia, and Formosa to discuss administrative problems, the present status of the mission projects, the planning of future projects, and the broad objectives of ECA in the region. Attended by representatives of the WHO and UNICEF, it was the first conference of its kind ever to be held.

Following the Bangkok conference, the PHS officials visited other Southeast Asiatic countries to study the operations of the several programs, remaining in the area about two months. The Public Health Service is responsible for the technical administration of, and recruitment of personnel for, all public health activities of STEM missions under the direction of the ECA chief of mission. Nearly 100 commissioned officers—doctors, nurses, sanitarians, administrators, and other public health personnel—are at present serving two year tours of duty in these ECA missions.

The members of the conference team were:

Virginia Arnold, R.N., chief nurse.
Paul S. Heneshaw, Ph.D., chief, Program Development Branch.
Howard M. Kline, Ph.D., chief, Technical Missions Branch.
R. W. McComas, M.D., chief, Health Service Branch.
Donald J. Pletsch, Ph.D., chief of SEA Technical Missions.

CUTTER LECTURE BY SCOTTISH DOCTOR

Dr. Dugald Baird, Regius Professor of Midwifery at the University of Aberdeen, Scotland, will deliver the 1951 Cutter Lecture on Preventive Medicine of the Harvard School of Public Health on the subject, "Preventive Medicine in Obstetrics." The Cutter Lectures were established in 1912 by the will of Dr. John Clarence Cutter of the class of 1877, which directed that they be "free to the medical profession and the press."

In addition, medical and public health students and the general public are welcome. Amphitheatre, Harvard Medical School, 5:00 p.m., October 15.

Dr. Baird will also attend the 79th Annual Meeting of the American Public Health Association in San Francisco. He is scheduled to give a paper on "Social and Economic Factors Affecting the Mother and Child" before the Maternal and Child Health Section.

ENGLISH CANCER AWARD TO DR. BITTNER

John J. Bittner, Ph.D., director of the Division of Cancer Biology of the University of Minnesota, past president of the American Association for Cancer Research, and winner of the 1950 medal of the American Cancer Society, is the first winner of the Comfort Crookshank Award for Cancer Research, an honor presented through the Middlesex Hospital Medical School in London. This month Dr. Bittner went to London to receive the silver medal award and the monetary grant of 230 English pounds ($644) which goes with it. He delivered a lecture on his cancer research at the medical school. The award, from funds donated by the late Bessie C. Crookshank, will be presented triennially to a scientist who has made valuable contributions to cancer research.

REHABILITATION COURSES

A four week advanced course in physical rehabilitation methods for physical therapists will be given three times during the current academic year by the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center. It is open to certified physical therapists with the approval of the curriculum director and carries four points of either undergraduate or postgraduate credit. The first course will begin on November 26.

Also announced is a three week course in physical rehabilitation methods for nurses, open to registered nurses with at least two years experience. A fourth week for additional practice and field trips is optional. The first course begins on October 29.

Further information about both of these courses from Miss Edith Buchwald, Director of Rehabilitation Courses for Physical Therapists, 400 East 34th St., New York City.

WATER QUALITY STANDARDS

As an aid to water pollution control agencies, the California Institute of Technology is consolidating available information on water quality standards, for the California State Water Pollution Control Board. An advisory board representing industry, trade associations, conservation groups, sportsmen's associations, agriculture, public health interests and others concerned with water quality requirements is being asked to coöperate in the project. Jack E. McKee, professor of sanitary engineering, is in charge of the work for the Institute.

UTAH RAISES ITS SIGHTS

The 29th Utah Legislature passed and the Governor signed a bill removing the $5,000 ceiling on the annual salary of the State Health Commissioner and empowering the State Board of Examiners on the recommendation of the State Board of Health to fix the salary. It further permits the Board of Health to appoint an acting commissioner in the absence of a commissioner. Another act authorizes the State Legislative Council and the State Board of Health to write a new health code for submission to the 1953 Legislature.

LABORATORY DIRECTOR QUALIFICATIONS

The Board of Directors of the National Association of Clinical Laboratories, according to a recent announcement, has voted that, effective December 31, 1952, qualifications of its director members shall be essentially the same as those recommended by the American

Public Health Association for public health laboratory directors. Copies of these qualifications are available from the A.P.H.A.

NEW INDUSTRIAL HYGIENE LABORATORY

Its new industrial hygiene laboratory was opened in May by the Occupational Medical Service of the Massachusetts Institute of Technology, whose program and equipment, according to the Institute's medical director, Dana L. Farnsworth, M.D., "are among the most extensive in any American educational institution." The new facilities will make possible advisory and testing services for all departments and laboratories of M.I.T., will assist in developing the most beneficial environment for all kinds of scientific and professional work, will train students in the essential requirements of a safe and effective environment for scientific and industrial work, and will teach students how to protect themselves and their coworkers from occupational hazards.

Harriet L. Hardy, M.D., is assistant medical director, in charge of the Occupational Health Service.

20 YEARS OF CHILD GUIDANCE BUREAU

The Bureau of Child Guidance of the Board of Education of the New York City Schools will hold an all-day Twentieth Anniversary Conference on October 27, 1951, at the Hotel Astor in New York City. Seven panel meetings dealing with various phases of "Child Guidance in a Changing World" will make up the morning session. Principal speaker at the luncheon session will be Louis Raths, of the Bureau of Intercultural Education, New York University.

EXTENDING OLD AGE INSURANCE

President Truman has suggested to Congress a plan for providing hospital insurance up to 60 days a year for persons of 65 years or older and dependents of deceased persons insured under the Old-Age and Survivors Insurance system. On the basis of preliminary investigations made by the Federal Security Agency, it was estimated that the full cost of such hospitalization benefits could be paid out of present Social Security payroll deductions and thus would require neither general tax money nor an increase in payroll deductions.

Among the advantages of the plan, the President pointed out, are those to:

1. Reduce expenditures for public assistance to those aged or their surviving dependents unable to meet the cost.
2. Reduce deficits of hospitals that now often furnish free or part-pay services to such patients.

The plan contemplates decentralization of administration wherever possible through the states. Regulations and general policy would be made only after consultation with the Federal Hospital Council, established under the Hill-Burton Hospital Survey and Construction Act.

The tentative details of the plan are found in a statement made at a press conference of June 25 by Federal Security Administrator Oscar R. Ewing, and is probably available from that agency, Washington, D. C.

MIDWEST RABIES CONTROL CONFERENCE

The following resolution concerning rabies control was adopted at the Midwestern-North Central Regional Rabies Conference held in Omaha, Neb., in May.

WHEREAS, rabies has become established and appears to be spreading through the upper Mississippi and Missouri Valleys and so constitutes a serious threat to human health, agricultural economy, and wildlife resources of this area, representatives of the affected states and personnel of responsible federal agencies met at Omaha, Nebraska, on May 21–22, 1951, and in closing agreed as follows:

1. That each of the affected states inaugurate coordinated programs for the control of rabies; that each state's program can most effectively

be carried out through the creation of a committee composed of representatives from those agencies at the state level responsible for public health, livestock disease control, and wildlife conservation.

2. That each state arrange for adequate diagnostic facilities and that reports of rabies cases in animals be collected by an appropriate state agency, and that the state health officer include these data in the weekly telegraphic reports to the U. S. Public Health Service.

3. That the epizootiology of rabies in wildlife is inadequately understood and urge that investigation of this subject be made to provide information necessary for the intelligent and effective control of this disease.

4. That technical assistance and guidance is available from the U. S. Public Health Service, the Fish and Wildlife Service of the Department of Interior, and the Bureau of Animal Industry of the U. S. Department of Agriculture.

E. A. Rogers, M.D., Acting State Health Officer of Nebraska, was elected chairman of the Conference.

ANOTHER VICTORY FOR ANIMAL RESEARCH

The recent Wisconsin legislature passed a bill which denies public funds to humane societies refusing to turn over unclaimed animals to medical schools, thus ending a long and bitter controversy between the medical schools and humane societies of that state. This follows a 1949 law whereby unclaimed animals are turned over to medical institutions for research studies. Failure to comply with the law may also constitute grounds for revocation of the humane society's corporate charter, or may result in court action to require compliance.

MARYLAND REORGANIZATION

The Maryland Health Department was reorganized on July 1, in accordance with an Act of the General Assembly of the state earlier in the year. The activities of the department are now channeled through seven bureaus whose chiefs alone are directly responsible to the health officer. All division chiefs are responsible to their respective bureau chiefs.

DR. SPINK LECTURES IN EUROPE

Wesley W. Spink, M.D., University of Minnesota professor of medicine and director of the United States Brucellosis Center at the University, and consultant on brucellosis for the World Health and the Food and Agricultural Organizations of the United Nations, spent July and August in England, France, Italy, and Yugoslavia correlating current brucellosis research. His work in Europe was described by Dr. Spink as a coöperative health effort on an international basis, designed to bring together information of the various brucellosis research centers for the benefit of each country. He addressed the Microbiology Section of the International Congress of Clinical Pathology on July 18.

MEXICO TRAINS SANITARY ENGINEERS

Graduate work leading to the Master of Sanitary Engineering degree is now part of the regular academic schedule of the National University of Mexico. The first class started in July. The course is given in four semesters of five months each. A certificate and a diploma are offered to those candidates who do not complete all the work required for the Master's degree. This is the first and at present only, graduate training in sanitary engineering available in Mexico.

Professor Alberto Ortiz Irigoyen is in charge of the course. The Institute of Inter-American Affairs is providing technical and financial help in the development of the program. Gordon M. Fair, professor of sanitary engineering, Harvard University, is one of the technical consultants.

CONNECTICUT ADDS A TOWN

Stratford, with a population of 33,600, on July 1, 1951, became the sixth town in Fairfield County and the seventeenth in Connecticut to establish a health department with a full-time medical health officer. This brings to a total of 57 the

per cent of the population of the state with such service, all in urban areas.

Fairfield County, in which Stratford is located, is the third most populous county of the state. Three-fourths of its population of over half a million are served by six municipal health departments, each covering from 30,000 to 159,000 persons. The remaining 17 towns of the county have part-time health officers.

The health officer of the newly organized service is Bernard McD. Krug, M.D., health officer of Milford, in the same state, since January, 1951.

LOUISIANA HEALTH WORKERS MEET

The annual meeting of the Louisiana Public Health Workers Association was held in Alexandria on June 7 and 8 and elected the following officers:

President: Thelma Applewhite, public health nurse, Franklin Parish.
1st Vice-President: Dr. Kendrick Taylor, director, Rapides Parish Health Unit.
2nd Vice-President: Louise Guidry, regional nurse, State Health Department.
Secretary-Treasurer: Anthony Ciaccio, director, Division of Public Health Statistics, State Health Department.

The first annual Axson-Choppin Memorial Plaque (honoring the first two state health officers) to be made annually to a person outside the field of public health who has made an outstanding contribution, was awarded to Dr. Ralph E. King, State Senator from Franklin Parish. A fellowship award in the Association, for long and diligent service, was presented to John H. O'Neill, director of the Division of Public Health Engineering of the State Health Department. Dr. Bertha Stokes won a prize for submitting the name "Pelican Patter" for the Association's publication.

RIVER WATER BACTERIAL STANDARDS

Bacterial-Quality Objectives for the Ohio River is presented by the Ohio River Valley Water Sanitation Commission as a guide in the establishment of treatment requirements for sewage discharged in the Ohio River, and as a yardstick for evaluating sanitary conditions in waters used for potable supplies and recreational purposes. The report is based upon findings of studies by Harold W. Streeter, consultant to the Commission. The "recommendations are a compromise between that which would be desirable and that which is administratively practicable." Copies from Edward J. Cleary, executive director and chief engineer, 414 Walnut Street, Cincinnati 2, Ohio.

WHO NEWS

World Population Study

The recent Executive Committee of WHO charged the Organization with the duty of studying the growth of the world's population and the relation of population to other world problems. With a disclaimer for entering into the controversy between those who decry the dangers of overpopulation and those who see impending economic catastrophe in declining birth rates particularly in the western world, WHO in its April, 1951, *Epidemiological and Vital Statistics Report* summarizes the growth of the world's population in the last half century.

The first qualification of its report is that there are few large areas in which there are wholly reliable figures either of present population or more especially of growth over the decades.

With this qualification, 1949 world population is estimated at 2,378,000,000 which represents a growth of more than 50 per cent since 1900. In three centuries, the world's population has nearly quadrupled. In the last half century the population in the American continents has grown by 112 per cent with Argentina at the head of the list with an increase of 251 per cent. Ireland is the only country that registered a decrease—7 per cent—in the 50 years.

Before the 18th century the force of mortality was the controlling factor in population growth but at present with the extension of medical science and public health measures mortality is being reduced at varying rates in many parts of the world. Therefore, it is increasingly necessary to take into account such matters as age and sex distribution of the population, the marriage rate, and fecundity.

Toward Uniform Statistics

WHO has established machinery to help in the development of uniform health and vital statistics throughout the world. In the summer of 1951 in Geneva its first international training course designed as a guide in the use of the *WHO Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* was held. The 7 day course was attended by health statisticians from 14 countries.

The *Manual* was first published by WHO in 1948, but it represented the sixth decennial revision of the International List, the first having been made in 1900 as a revision of the Bertillon list.

In addition the WHO Statistical Center in Southport, England, in which the General Register Office of England and Wales collaborates is available to national statistical administrations for discussion and consultation on problems arising in the use of the *Manual*. Dr. Percy Stocks, formerly Chief Medical Statistician, at the General Register Office, directs the new WHO Center.

Also in the interest of continuity and uniformity in statistics, WHO has recently published Part I of the *Annual Epidemiological and Vital Statistics, 1939–1946,* which carries on where the last Annual Epidemiological Report for 1938 of the Health Organization of the League of Nations left off. Part I deals with vital statistics and causes of death, Part II to follow shortly contains corrected statistics of notifiable disease. This report follows on the whole the pattern of the annual reports issued by the League of Nations.

Public Health Opens the Jungle

A WHO malaria control demonstration in a jungle valley of South India saw its work hampered through lack of communication between widely separated jungle villages. The local government, on suggestion of the control team's leader, Dr. L. Mara, constructed a nine mile road with the financial help of landowners in the valley. What was an almost impenetrable and sparsely settled jungle is now open to colonization; forests are being cleared and new houses being built. The fertile soil offers great agricultural possibilities. In addition, Dr. Mara reports, the population is grateful and friendly to the WHO team and DDT spraying operations in houses are increasingly welcomed among the valley tribes.

Pan American's New Home

The new address of the Pan American Sanitary Bureau, Regional Office of WHO, is 1501–15 New Hampshire Avenue, N. W., Washington 6, D. C.

PERSONALS

PAULO C. A. ANTUNES, M.D., who has been in charge of all the Bureau's public health programs for the past 3 years, has been appointed assistant director of the Pan American Sanitary Bureau, Regional Office of WHO, succeeding JOHN R. MURDOCK, M.D.,† who recently resigned to return to his post in the U. S. Public Health Service.

MARGARET W. BARNARD, M.D.,* retiring director of district health administration, New York City Department of Health, has been appointed associate professor of public health practice at the Columbia University School of Public Health.

REPRESENTATIVE FRANCES PAYNE BOLTON,† of

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* Fellow A.P.H.A.
† Member A.P.H.A.

Ohio, author of a bill for federal aid to nursing education and sponsor of the Cadet Nurse Corps bill during World War II, was named the recipient of the Adelaide Nutting Medal at the recent 55th convention of the National League of Nursing Education.

ROBERT M. BROWN,* formerly assistant professor of public health, Department of Public Health, Yale University, New Haven, Conn., has been appointed chief, Bureau of Environmental Hygiene, Maryland State Department of Health, Baltimore.

DALE C. CAMERON, M.D.,† formerly assistant director of the National Institute of Mental Health, who recently completed a one year postgraduate course at Johns Hopkins University for the M.P.H. degree, has been appointed chief of the Cooperative Health Services Branch of the Division of Industrial Hygiene, U. S. Public Health Service.

HOLLAND M. CARTER, M.D.,† following receipt of an M.P.H. degree from the Harvard School of Public Health, was appointed director, Colleton County Health Department, Walterboro, S. C.

DOROTHY B. CHAMBERLIN, M.D.,† has resigned as assistant health officer in the Middletown District, New York State Department of Health, to accept a training position in psychiatry at the Boston Psychopathic Hospital.

MARION DRESSLER, M.D.,† chief of the Crippled Children's Section, Colorado State Health Department since 1947, has resigned and CHARLES DOWDING, JR., M.D.,† succeeded him, continuing as chief of the Maternal and Child Health Section as well.

COL. FRATIS L. DUFF,† professor of military science and tactics at Johns Hopkins University since 1949, and presently completing his doctorate in public health, has become chief of the Preventive Medicine Division, Office of the Surgeon General, U. S. Air Force.

ELMER J. ELIAS, M.D.,† was recently appointed health officer of Trenton, N. J.

LOUIS D. ELLIOTT, associate commissioner, U. S. Food and Drug Administration and on its staff since 1913, retired on June 30 and was succeeded by MALCOLM R. STEPHENS, chief of the Chicago District. Dr. Elliott will spend his retirement in New Hampshire and California.

JOHN E. FARRELL, SC.D.,* who recently resigned as secretary-treasurer of both the Conference of Presidents and Other Officers of State Medical Associations, and the Medical Society Executives Conference, was elected vice-chairman of the latter organization at its 5th annual meeting at Atlantic City in June. Dr. Farrell is executive secretary of the Rhode Island Medical Society.

ALICE MARCELLA FAY, M.S.,† has succeeded LILLIAN A. GARDINER, R.N.,† as public health nursing consultant for the Boston Regional Office of the Public Health Service. Miss Gardiner is now chief nurse advisor for the Economic Cooperation Administration in Thailand, with headquarters in Bangkok. Three other Public Health Service nurses, MARY BOUSER,† FLORENCE ULLMAN,† and WALBORG WAYNE,† left in April for assignments to health teams in Burma.

MARION L. FOX, R.N., chief, Nursing Service of the Veterans Administration Hospital, New Orleans, has been appointed to the newly created position of nursing specialist, American Hospital Association.

HAROLD FULLER,† formerly public relations and health education director, Lawrence-Wabash Bi-County Health Department, has been appointed executive assistant in the Division of Local Health Services, Illinois State Department of Public Health.

QUENTIN S. GONSER,† chief administrative assistant, North Dakota State Health Department, has resigned to become vice-president of the Sparkle Dentifrice Company.

JAMES T. GOOGE,* senior surgeon in the Public Health Service, who had been serving as assistant commissioner of health and chief, Section of Local Health Administration, Alaska Department of Health, was recently transferred to the Public Health Service Regional Office, San Francisco, Calif.

WILLIAM GRODOWITZ,† analytical statistician, has transferred from the Biometrics Section of the National Cancer Institute, U. S. Public Health Service, to the Biometrics Division of the Surgeon General's Office, Department of the Air Forces.

R. M. HEILMAN, M.D.,† has resigned as deputy state health officer of Kansas to join the staff of the Oregon State Department of Health, with headquarters in Portland.

THOMAS R. HOOD, M.D., M.P.H.,* health officer of the Topeka City-Shawnee County Health Department for the past two years, and earlier health officer of Cowley County and also of Douglas County in the state, has been made state health officer for Kansas, succeeding FLOYD C. BEELMAN, M.D.

HUGO V. HULLERMAN, M.D.,* formerly assistant director of the American Hospital Association, has been appointed director of hospital services of The United Hospital Fund of New York.

ROBERT L. JOHNSON,† who has completed the required apprenticeship in health education

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† Member A.P.H.A.

in several of the state's county health departments, has been appointed assistant director of the Office of Health Education of the Erie County (N.Y.) Department of Health.

SEYMOUR S. KETY, M.D., professor of clinical physiology at the University of Pennsylvania Graduate School of Medicine, has been appointed scientific director for the joint research program of the Mental Health Institute and the new Neurological Diseases and Blindness Institute of the National Institutes of Health, Bethesda, Md.

RUTH E. LAYDEN, former librarian for Denver General, Colorado General, and Mercy Hospitals in Denver, is now librarian of the Public Health Education Section, Colorado State Department of Public Health.

CHARLES U. LETOURNEAU, M.D., organizer and first superintendent of the Queen Mary Veterans Hospital in Montreal, has been appointed secretary of the American Hospital Association's Council on Professional Practice.

CHIN CHUN LI, PH.D., formerly professor and head, Department of Agronomy, National Peking University in Peiping, has been appointed research fellow in biostatistics, Graduate School of Public Health, University of Pittsburgh, to conduct studies on inheritance in relation to public health problems. Dr. Li's return to the United States was made possible through the Committee on Aid to Geneticists Abroad of the Genetics Society of America.

RICHARD P. MACLEISH, administrator of the South Haven Hospital, Michigan, for two years, has been appointed to the newly created position of hospital administrator, Michigan State Department of Public Health.

KENNETH E. MARKUSON, M.D., M.P.H.,† director of the Bureau of Industrial Hygiene, Connecticut State Department of Health, has resigned to become director of adult hygiene, Montana State Department of Health.

JULES H. MASSERMAN, M.D., associate professor of nervous and mental diseases at Northwestern University and scientific director of the National Foundation for Psychiatric Research, has been appointed consultant to the Secretariat of the United Nations and designated by the World Health Organization to present a series of lectures at universities throughout Europe and Scandinavia in October and November.

CARL B. MILLER, sanitarian, Kanawha-Charleston Health Department, W. Va., resigned as of July 1 to accept employment with the National Production Authority, Washington, D. C.

MABEL MORTVEDT, R.N.,† nurse officer of the U. S. Public Health Service, is now in Burma, assigned to the Economic Cooperation Administration health mission in Southeast Asia to do overall public health nursing, with emphasis on maternal and child health, communicable diseases, and health teaching.

FREDERIC W. NORDSIEK,* since 1943 assistant director, Research Service Department, Standard Brands, has become assistant secretary to the Research Committee of the American Cancer Society, with headquarters in New York City.

ALTON S. POPE, M.D.,* Massachusetts deputy commissioner of health and director of the Division of Tuberculosis, took office as president of the National Tuberculosis Association during the 47th annual meeting in Cincinnati, May 14–18.

ROBERT R. ROBINSON, recently editorial consultant to the Ontario Health Survey Committee and Public relations counsel of the Periodical Press Association of Canada, has been appointed director of public relations for the Health League of Canada and managing editor of *Health* magazine. RENNY ENGLEBERT, formerly executive assistant to the Commissioner of Hospital Insurance Service in British Columbia, is advertising and circulation manager of *Health*.

MARY I. ROGERS, R.N., nurse officer of the U. S. Public Health Service, assigned to the Economic Cooperation Administration health mission in Southeast Asia, is in Thailand for 2 years on a team of doctors and nurses from Washington University, St. Louis, who will supplement the regular staff of a medical and nursing school in Bangkok.

GEORGE ROSEN, M.D.,* associate medical director of the Health Insurance Plan of Greater New York, has been named professor and head of the Division of Public Health Education of the Columbia University School of Public Health. He will retain a connection with the Health Insurance Plan in order to explore and to develop the fullest possible use of educational and preventive services in a comprehensive prepaid medical care plan.

BERNARD W. ROSENBURGH, M.D.,† a Public Health Service officer who has served as medical officer at various Indian reservations, is on a two year tour of Indo-China, serving as a public health administrator attached to the Special Technical and Economic Mission of the Economic Cooperation Administration.

URCICIO SANTIAGO, M.D.,† of Salvador, Bahia, Brazil, was appointed director of the Social Welfare Department and secretary of health and social welfare by the new government of Brazil in October, 1950. He will have

state hospitals as well as social welfare institutions under his direction.

MABEL K. STAUPERS, R.N., first executive secretary and past president of the National Association of Colored Graduate Nurses, was given the Spingarn Medal, awarded annually to an outstanding American Negro, by the National Association for the Advancement of Colored People, in Atlanta, Ga., June 29.

P. A. STEELE, M.D.,† former health officer of Decatur, Ill., has resigned to return to private practice. He has been succeeded by A. C. BAXTER, M.D.,* who was health officer of Springfield until April elections returned the health officer position to part-time status.

MIRIAM R. STEINHARDT, formerly on the advertising staff of *Flower Grower*, has been appointed editorial assistant in the Office of Public Health Education, New York State Department of Health, succeeding CLIFFORD M. HODGE, who has been promoted to the position of chief, Production and Distribution Unit.

MARGARET S. TAYLOR, R.N.,* director of the course in Public Health Nursing, Minnesota School of Public Health, spent the summer on a Fulbright Travel Grant visiting Public Health Nursing programs in Brazil, Chile, and Colombia.

ALICE B. TOBLER-LENNHOFF, M.D.,* formerly assistant health officer of Anne Arundel County, has been appointed deputy state health officer of Calvert County (Md.) after having acted in that capacity since August, 1950, when RICHARD Q. PETITFILS, M.D., resigned.

FRANKLIN H. TOP, M.D.,* professor of epidemiology at the Minnesota School of Public Health, spent the summer in Germany under the joint auspices of the State and War Departments on a program of instructing German physicians in newer developments of communicable disease control.

JEANETTE VROOM, R.N.,† assistant professor of public health nursing, Minnesota School of Public Health, has resigned to become director of Hennepin County (Minn.) Public Health Nursing Service.

JAMES R. WADSWORTH, V.M.D.,† formerly with the state Regional Diagnostic Laboratory at Harrisonburg, Va., has been named assistant extension and station animal pathologist at the College of Agriculture, University of Vermont, Burlington.

HAROLD A. WHITTAKER,* professor of public health engineering, Minnesota School of Public Health, has retired from active service and becomes professor emeritus. He has been succeeded by HERBERT M. BOSCH,* who has been on a two year service as chief of the Division of Environmental Sanitation, World Health Organization, and previously director of the Division of Environmental Sanitation, Minnesota State Health Department.

* Fellow A.P.H.A.
† Member A.P.H.A.

DEATHS

WILL ROSS, member of the board of directors of the Wisconsin Anti-Tuberculosis Association and former president of the National Tuberculosis Association, in June at the age of 62.

HERBERT F. SALMOND,† for over 35 years chemist and bacteriologist at the West Parish Filters of the Springfield Water Works in the Mundale section of Westfield, Mass., on July 4 at the age of 72. In 1950 Mr. Salmond was awarded a certificate for more than 40 years membership in the American Public Health Association (Laboratory Section).

G. T. WASSON, M.D.,† formerly health commissioner of Crawford-Wyandot Counties, Ohio, June 11 (Unaffiliated).

CONFERENCES AND DATES

American Public Health Association. Headquarters, Civic Auditorium, San Francisco, Calif. Oct. 29–Nov. 2.

Western Branch (18th Annual Meeting) with the A.P.H.A. Civic Auditorium, San Francisco, Calif. Oct. 29–Nov. 2.

Coming in September, October, and November:

American Congress of Physical Medicine. Shirley-Savoy Hotel, Denver, Colo. Sept. 4–8.

American Dietetic Association. Cleveland, Ohio, Oct. 9–10.

American Hospital Association. St. Louis, Mo. Sept. 17–20.

American Occupational Therapy Association. New Castle, N. H. Sept. 8–15.

American Public Welfare Association. Hotel Statler, Washington, D. C. Nov.29–Dec. 1.

American Water Works Association:

Alabama-Mississippi Section. Buena Vista Hotel, Biloxi, Miss. Sept. 24–26.

Kentucky-Tennessee Section. Louisville Kentucky Hotel, Louisville. Sept. 17–19.

Michigan Section. Whitcomb Hotel, St. Joseph, Mich. Sept. 19–21.

Minnesota Section. Hotel Nicollet, Minneapolis, Minn. Sept. 12–14.

Missouri Section. Hotel Robidoux, St. Joseph, Mo. Sept. 30–Oct. 2.